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BUREAU FEDERAL

ASSESSMENT REVIEW

D'EXAMEN DES EVALUATIONS

OFFICE

ENVIRONNEMENTALES

Held at/Auditions tenues au:
St. John Trade
and
Convention Centre

Date: Monday, November 5, 1990
Lundi le 05 novembre

Volume: 7

B E F O R E / D E V A N T :

MR. BLAIR SEABORN

Chairman/Président

MS. LOUISE ROY

Member/Membre

DR. LOIS WILSON

Member/Membre

DR. LOUIS LAPIERRE

Member/Membre

DR. WILLIAM FYFE

Member/Membre

MR. PIETER van VLIET

Member/Membre

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FEDERAL ENVIRONMENTAL
ASSESSMENT REVIEW OFFICE



FEDERAL ENVIRONMENTAL
ASSESSMENT REVIEW OFFICE
ON NUCLEAR FUEL WASTE
MANAGEMENT

BUREAU FÉDÉRAL D'EXAMEN
DES ÉVALUATIONS
ENVIRONNEMENTALES
DE LA GESTION DES DÉCHETS
DE COMBUSTIBLES NUCLÉAIRES

SCOPING MEETING
RÉUNIONS DE DÉTERMINATION DE L'IMPORTANCE DES PROBLÈMES

Hearing held at/Auditions tenues au:
St John Trade and Convention Centre
St John, New Brunswick,

Monday November 5th/Lundi le 05 novembre
1990
02:00 p.m./14.00 heures

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Member/Membre

MR. PIETER van VLIET

Member/Membre



(i)

A P P E A R A N C E S

MR. ROGER G. STEED	CANADIAN NUCLEAR SOCIETY NEW BRUNSWICK BRANCH
MISS KATHY HOOPER	PRIVATE CITIZEN
MS. JOCELYN DUPUIS	PRIVATE CITIZEN
MS. JOCELYNE GALBRAITH	PEOPLE AGAINST LEPREAU 2
MR. DAVID THOMPSON	
MR. JEFF GALBRAITH	PRIVATE CITIZEN
MR. JEFF GALBRAITH	ECO-CHALEUR
MR. JEFF GALBRAITH	MIRAMICHI ENVIRONMENTAL SOCIETY
MS. JANET DINGWELL	PRIVATE CITIZEN
DR. TIPPETT	SUSSEX PROJECT PLOUGHSHARES
MR. ROBERT BROWN	ALTERNATIVE MEANS OF POWER
DR. TIPPETT	PRIVATE CITIZEN
DR. IAN CAMPBELL	PRIVATE CITIZEN



1 ---Upon commencing at 2:00 p.m.

2
3 MR. BLAIR SEABORN, CHAIRMAN:

4 Good afternoon, ladies and gentlemen, and welcome to
5 the... this in the series of scoping meetings which are
6 being held by the Environmental Assessment Panel, which
7 is reviewing nuclear fuel waste management and disposal
8 concept.

9 A panel which was appointed by the minister
10 of the environment in October of last year, October 89.

11 We shall basically be conducting this
12 meeting in English but you will be able if you wish to
13 listen to the proceedings of it in French through
14 headsets which are available at the back of the room.

15 And it goes without saying that if anyone
16 wishes to make a presentation in French, he or she will
17 be heard.

18 Could I start by introducing the members of
19 our panel who are with us this afternoon. At... to my
20 left, that end of the table is Doctor Louis Lapierre, a
21 professor in the department of biology at the University
22 of Moncton. He's also chairman of the Environmental
23 Council of New Brunswick.

24 On my immediate left, Doctor Lois Wilson of
25 Toronto, who is president of the World Council of



1 Churches and a co-director of the Ecumenical Forum of
2 Canada, also based in Toronto.

3 To my immediate right, Doctor William Fyfe,
4 a professor in the department of geology and Dean of the
5 Faculty of Science at the University of Western Ontario,
6 London, Ontario.

7 And to his right again, Ms. Louise Roy of
8 Montreal, an environmental and public affairs consultant.
9 She is currently vice-president of the Quebec Foundation
10 of the Environment, and a member of the Canadian Environ-
11 mental Assessment Research Council.

12 We shall be joined, possibly later this
13 afternoon, but I know, this evening, by Mr. Pieter Van
14 Vliet from Regina, he's en route from Regina now. He's
15 a mechanical engineer living in that city and is a member
16 of the Senate at the University of Regina.

17 My name is Blair Seaborn, I'm Chairman of
18 the panel and I reside in Ottawa. I'm retired but I
19 served previously as Deputy Minister of the Environment
20 and Canadian chairman of the International Joint
21 Commission.

22 I'd like to make the point that all of us on
23 this panel, and there is one other member from London
24 Ontario, a medical doctor who could not join us for these
25 two sessions, all of us are from the private sector.



1 We have been appointed by the minister of
2 the Environment, we shall eventually be reporting to him,
3 but we will be making our report on the basis of our
4 personal and professional knowledge of the subject and
5 what we learn from people as we go across the country and
6 in total independence of Government.

7 I would like to introduce the panel
8 secretariat. At the table, just to the left of this
9 front table is Mr. Bob Greyell who is the Executive
10 Secretary. And at the back of the... of this rather
11 cavernous room, Miss Suzan Toller and Miss Suzan
12 Flannegan, members of the staff. Any of them would be
13 glad to provide information you may need with regard to
14 the review.

15 The review is being conducted in accordance
16 with the Federal Environmental Assessment and Review
17 Process EARP. The process insures that environmental
18 implications or proposals for which the Federal
19 government has decision making authority, are fully
20 considered as early in the planning process as possible.
21 And before irrevocable decisions are made.

22 I hope that some of you may have had the
23 opportunity to receive information on this review process
24 and on the proposal of Atomic Energy of Canada Limited at
25 the open houses which were held in May and June of this



1 year.

2 The panel has been asked in part to examine
3 the nuclear fuel waste management and disposal concept
4 which is a proposal for the permanent disposal of used
5 nuclear fuel, deep in the granitic rock of the Canadian
6 shield.

7 This proposal would see the used fuel sealed
8 inside corrosion resistant containers and placed in holes
9 drilled in the floor of a room inside a disposal vault.

10 The vault would in some ways resemble a deep
11 mine that would contain the used fuel in an area of
12 approximately four (4) square kilometres.

13 I'd like to say a few words about this
14 panel's mandate. The terms of reference state that we
15 are to review the safety and acceptability of the concept
16 for geological disposal of nuclear waste in Canada as
17 proposed by Atomic Energy of Canada Limited.

18 In addition to the AECL proposal, we shall
19 examine a broad range of nuclear fuel waste management
20 issues including long term management, transport and
21 environmental, social and economic effects.

22 We shall look at approaches to nuclear fuel
23 waste management and disposal being developed elsewhere
24 in the world. Since site selection will not occur until
25 a disposal concept has been accepted as safe, the panel



1 will not consider any specific sites but it will review
2 the potential availability of sites and the methodology
3 and the criteria required for site selection.

4 I'd also like to say a few words about what
5 is not in the panel's mandate, and will not be addressed
6 in this review. We will not be addressing the energy
7 policies of Canada and the provinces nor the role of
8 nuclear energy within these policies, including the
9 construction, operation of safety of new or existing
10 nuclear fuel plants nor fuel reprocessing... fuel
11 reprocessing as an energy policy, nor the military
12 application of nuclear technology.

13 Let me clear however that the members of the
14 panel are very much aware of the broader concerns related
15 to the use of nuclear materials and the use of nuclear
16 power for the generation of electricity.

17 The panel has been urging a broader review
18 of the comparative environmental implications, of the
19 various methods of generating electricity.

20 I understand the steps have now been taken
21 to get such a review under way. I hope in the fairly
22 near future.

23 The purpose of scoping such as these is to
24 allow participants to identify the issues that need to be
25 addressed in the environmental impact statement that is



1 to be prepared by AECL.

2 The panel is not requesting the presentation
3 of opinions on the substances of the disposal concept at
4 this time. Public hearings will held later to discuss
5 whether AECL's proposal is acceptable or otherwise.

6 Scoping meetings enable participants to
7 assist the panel in identifying the issues that are of
8 concern and questions which need answers.

9 Following this series of meetings, the panel
10 will prepare draft guidelines for the preparation of the
11 environmental impact statement. We shall invite public
12 comments on these draft guidelines over a period of at
13 least thirty (30) days. After consideration of these
14 comments, the panel will finalize the guidelines and
15 issue them to AECL.

16 When AECL has completed the environmental
17 impact statement, and submitted it to the panel, the
18 document will then be available for at least a ninety
19 (90) day public review period. Let me stress however
20 that the preparation by AECL of the environmental impact
21 statement is expected to be a lengthy process lasting a
22 year to a year and a half, I would expect. So that we
23 will not get around to looking at the EIS and the public
24 hearings which would follow it, for quite some time, a
25 year and a half or even as much as two (2) years from



1 now.

2 To assist in the evaluation of scientific
3 and technical matters, a scientific review group of
4 distinguished independent experts has been established by
5 the panel to examine the safety and the scientific
6 acceptability of AECL's disposal concept.

7 A report of their findings and
8 recommendations will be submitted to the panel who will
9 distribute it also to the public. Once the panel is
10 satisfied that AECL has addressed satisfactory all the
11 items identified in the guidelines, we will then hold our
12 public hearings.

13 Participants will be asked at that time to discuss the
14 acceptability or otherwise of AECL's disposal concept in
15 detail.

16 The panel will consider all comments
17 submitted to it and will, as its final act, prepare its
18 report to the ministers of the environment and of energy,
19 mines and resources.

20 The present scoping meetings will be
21 conducted according to the meeting procedures which were
22 published on August the 24th 1990. We would appreciate
23 it if where you participants would restrict themselves to
24 the identification of issues within the panel's mandate.

25 I would ask that those registered to speak, attempt to



1 summarize their concerns in fifteen (15) minutes unless
2 they have previously requested an additional ten (10)
3 minutes.

4 The panel will pay equal attention to
5 written and oral statements. Participants who have
6 registered in advance will be asked to present their
7 views to the panel and we may ask questions of
8 clarification following each presentation.

9 Anyone who would like to make a presentation
10 to the panel and has not yet registered may speak to any
11 of the members of the staff in order to get their name on
12 the list.

13 We will certainly do our best to accommodate
14 those who have not registered in advance, but of course
15 that may depend in part, on the time remaining at the end
16 of each meeting.

17 Court reporters will record the proceedings
18 of each meeting and transcripts will be made available to
19 the designated libraries.

20 A compilation of written submissions will
21 also be available from the Federal Environmental
22 Assessment Review Office in Ottawa.

23 The panel will accept written submissions
24 identifying issues and concerns up to and including
25 November 30th, 1990.



1 With this introduction to explain our
2 procedures, I would ask our first participant to come
3 forward and to take place at this table where we can see
4 the participant and you may as well. And that will be
5 Mr. Roger G. Steed of the Canadian Nuclear Society, New
6 Brunswick branch. Mr. Steed.

7 PRESENTATION BY MR. ROGER G. STEED:

8 Mr. Chairman, distinguished members of the
9 panel, ladies and gentlemen. I had considered begging
10 leave to commence by showing a few of AECL slides to
11 illustrate their concept of deep disposal of spent fuel
12 as well as transportation flask testing, primarily for
13 the benefit of those in the hall this afternoon who may
14 not have had as ready access to this material as those of
15 us within the nuclear industry since our presentation is
16 the first to be made in New Brunswick.

17 However, they might have been considered as
18 somewhat promoting the concept and the industry in gene-
19 ral. So it is probably wiser not to show them. I fully
20 appreciate that you, the panel, will already be fully
21 familiar with the concept and I will therefore be very
22 brief.

23 I hope that I may be permitted to make a few
24 comments at the outset though, reflecting our views
25 before specifically addressing the question of the scope



1 of the assessment.

2 I would like to stress that, in our view,
3 the proposed scheme for underground disposal provides
4 complete protection for mankind and the environment.

5 Since, in five hundred (500) years, the
6 activity of a spent fuel bundle discharged from a reactor
7 today will not be appreciably more than that of the
8 original uranium ore when it was first taken from the
9 ground.

10 The concept under review is designed to
11 prevent absolutely any leakage of radioactive material
12 from within the storage containers for at least five
13 hundred (500) years. Lest this seems a long time, it is
14 short in comparison with the ages of many well known
15 manmade structures, Westminster Abbey, the Parthenon and
16 the Pyramids, to name only three (3).

17 I would like to emphasize the need to
18 consider convenient retrieval in your deliberations since
19 reprocessing may become necessary in the future as
20 availability of new uranium dwindles and its price
21 increases.

22 We will look pretty silly in the eyes at the
23 rest of this energy hungry world to be literally sitting
24 on a colossal source of energy and be unable to utilize
25 its unburnt plutonium and uranium.



1 Irretrievable disposal in our view is a
2 luxury we cannot afford. We think that it is important
3 to bear in mind the care with which radioactive waste are
4 already handled today in comparison with non radio active
5 hazardous substances which are widely dispersed, do not
6 decay and hence are forever harmful. In contrast,
7 nuclear fuel wastes are completely contained, closely
8 monitored by both federal and international agencies and
9 isolated from the environment already.

10 We would like to state that in our view, the
11 transportation of nuclear fuel waste is safe and remind
12 the public that it is already going on.

13 It is a great deal less hazardous than the
14 transport of many dangerous commodities now routinely
15 shipped with hardly a thought until an accident occurs,
16 that is.

17 Specifically addressing the scope of the
18 environmental assessment, we submit that it should care-
19 fully and thoughtfully enquire into the concept of dis-
20 posal of spent fuel including transportation of the fuel
21 to the disposal site, to satisfy the informed reasonable
22 layman beyond all reasonable doubt, that this concept,
23 including its transportation, is viable and safe.

24 It is further submitted that the public must
25 be appraised of the work already done at Whiteshell and



1 the underground research laboratory, in layman's language
2 so that it can appreciate that its concerns have been
3 given very thorough attention and completely addressed.

4 We submit that it should not deal with
5 whether or not nuclear power generation is necessary or
6 safe. As the Chairman has mentioned, that is outside the
7 scope of this review and will be properly dealt with in
8 another forum.

9 Finally, if this assessment process is to
10 serve the best interests of this country, irrational
11 fears must be somewhat discounted, particularly those so
12 stridently enunciated by special interest groups
13 dedicated to shutting down nuclear power generation and
14 only arguments based on the physical or social sciences
15 be given serious consideration.

16 Thank you, Mr. Chairman for allowing me the
17 opportunity to present our views to this panel.

18 THE CHAIRMAN: Thank you Mr. Steed for this
19 brief presentation. I wonder if there are any points of
20 clarification which members of the panel would like to
21 put to you while we have the advantage of your presence.
22 Doctor Lapierre?

23 DR. LOUIS LAPIERRE: Mr. Steed, one of your
24 comments in your final paragraph is irrational fears. I
25 have two questions. One of them, what do you consider



1 irrational fears to be? Could you give us an example.
2 And secondly, who should be responsible to dispel these
3 fears in society?

4 MR. ROGER G. STEED: One example would be,
5 in my view, the irrational fear of virtually anything
6 that is associated with radioactivity. There is a great
7 difficulty I think in the public mind to appreciate that
8 radioactivity is a very natural phenomenon and has ex-
9 isted since the dawn of time. And some of us associated
10 with nuclear power, have a great deal of difficulty in
11 addressing that concern in the public mind and trying to
12 help people understand what radioactivity is all about.

13 It's a very bad word in many people's minds.
14 It's inherently bad and I would say that is an example of
15 an irrational fear.

16 DR. LOUIS LAPIERRE: There was a second part
17 of my question as to who should be responsible to dispel
18 these fears? You wouldn't want us to do that?

19 MR. ROGER G. STEED: I think the nuclear
20 industry has more work to do in trying to dispel those
21 fears and try to achieve a greater understanding in the
22 public mind. And some of us would contend that perhaps
23 we haven't done enough in this industry hereto forth, to
24 address that concern.

25 However, some of us who try to address that



1 concern find that our answers to questions just aren't
2 wanted unfortunately. And it's very, very hard to
3 establish a dialogue and to address those concerns, to
4 try to gain some understanding and have a dialogue.

5 THE CHAIRMAN: Thank you.

6 DR. LOUIS LAPIERRE: Could I have another
7 question?

8 THE CHAIRMAN: Certainly, by all means.

9 DR. LOUIS LAPIERRE: One of your comments
10 relates the retrievability of the disposal method. Would
11 you care to comment more on the... what you consider
12 retrievable or retrievability. Would you mean a surface
13 storage versus deep disposal?

14 MR. ROGER G. STEED: I think deep disposal
15 is perfectly acceptable and is preferred but I would not
16 want to rule out the option of our being able to go back
17 down at some time in the future and without a great deal
18 of trouble, recover some of that material for uses and
19 energy source, should it become necessary to do so.

20 I think at the moment, we are fortunate in
21 that there's a fairly great availability of energy
22 although obviously, it's getting shorter, shorter supply
23 all the time but at the moment, there is no need to
24 reprocess spent fuel from Canadian reactors. I tend to
25 think fifty (50) or a hundred (100) years hence, that



1 need may well arise. And I don't think we can possibly
2 afford to close off that option to people who... some
3 generations ahead.

4 DR. LOUIS LAPIERRE: Thank you.

5 DR. LOIS WILSON: You say here that we
6 should enquire into the concept of the disposal of spent
7 fuel including transportation to satisfy the informed
8 reasonable person beyond all reasonable doubt that it is
9 viable and safe.

10 You've put "safe" in quotation marks, could
11 you help us on the panel by telling us what... what kind
12 of questions we need to ask, what kind of areas we would
13 need to enquire into in order to satisfy the informed
14 layperson?

15 MR. ROGER G. STEED: Perhaps I can suggest
16 that a great deal of work has already been done and... on
17 both transportation and storage and testing for example,
18 of transportation flasks and in extremely rigorous
19 circumstances, collisions and very intense fires.

20 I would submit that many of the public are
21 completely unaware that that work is being done. And if
22 you look hard enough for it, you'll find some evidence
23 and you could go into the Ontario Science Centre and see
24 a five minute film if you know where to look.

25 But very little of that work is in front of



1 the public. I'm just trying to suggest that somehow and
2 I know it's difficult, I think at the end of this
3 process, that the public must be made aware in terms that
4 it can understand, of that work that shows conclusively
5 that transportation say, of spent fuel, is a great deal
6 safer say than the transport of propane or gasoline on
7 the highways today.

8 We're constantly passing tankers on the
9 highway and we're lucky when they don't overturn and
10 cause a tremendous incineration. Those vehicles have not
11 be as rigorously tested say as those which are required
12 to handle spent fuel.

13 DR. LOIS WILSON: I'm trying to find out
14 other areas other than transportation that you think are
15 important?

16 MR. ROGER G. STEED: Well, I would suggest
17 if you look thoroughly at transportation and the deep
18 disposal and the extreme ... extremely improbable
19 likelihood of radioactive fusion products coming out into
20 ground water, making their way into the environment,
21 making their way into people's drinking water and clearly
22 you'll be looking at those things in great depth as will
23 be your scientific panel.

24 But I think the public must see that you've
25 considered those very, very thoughtfully and show that



1 that work has been done and that it is extremely
2 reasonable work.

3 DR. LOIS WILSON: Um-hum.

4 MR. ROGER G. STEED: Have I helped you at
5 all?

6 DR. LOIS WILSON: Well, I've got trans-
7 portation and ground water. And there any other areas?

8 MR. ROGER G. STEED: Well I say generally
9 transportation and the storage, the final disposal.

10 DR. LOIS WILSON: Alright. O.K.

11 THE CHAIRMAN: Thank you very much indeed
12 Mr. Steed...

13 MR. ROGER G. STEED: Thank you, Mr.
14 Chairman.

15 THE CHAIRMAN: We'll take note of your words
16 and we have of course a text of your presentation as
17 well. Thank you.

18 MR. ROGER G. STEED: Thank you.

19 ---Mr. Steed withdraws.

20 THE CHAIRMAN: The next name that I have on
21 the list but I'm not sure whether she's here yet or not,
22 is Miss Kathy Hooper.

23 PRESENTATION BY MISS KATHY HOOPER:

24 Thank you for letting me speak to you and I
25 hope some of the things I have to say might be



1 interesting.

2 You asked for questions and I have many.
3 The first one is why, after all these years, I'm still
4 coming to this kind of meeting. I remember being part of
5 discussions like this twenty (20) years ago and have been
6 part of many others. The issue was the same, the answer
7 just as clear. We have no right to continue on a course
8 to produce power which we know to be extremely dangerous
9 because of the wastes left by this form of generation.

10 Twenty (20) years ago, Canadians were asking
11 for caution, for the need of safe disposal for the waste
12 to be decided first (1st) before the building of plants.
13 We were ignored and now have come before you and we, a
14 bit sad, had tried to say the same things. So let me say
15 from the start, that I believe you. We must pressure to
16 have the decision made to put a moratorium on all nuclear
17 power production until we have come up with a safe way of
18 disposing of the wastes.

19 I'm not stupid enough to understand some of
20 the more obvious results of this action. The economics,
21 the problem with our other methods of energy production
22 and their environmental impacts, the loss of jobs etc.

23 But I believe we have to see the problem for
24 what it is, an immense one, and one which we cannot
25 afford to hide. We do not have the answers, therefore



1 before it is too late, we need to stop to consider what
2 we should do. And this is what I believe we are doing
3 right now.

4 My questions are one, on the burial of
5 wastes in the Canadian shield, do we honestly know what
6 large concentration of this highly toxic radioactive
7 material will actually when stored in this way.

8 To my way of thinking, the most brilliant
9 minds can only really be guessing that concrete, earth,
10 clay and rock will contain them. They cannot be certain
11 since we have never dealt with this kind of waste before.

12 I have read what AECL says will happen when
13 waste is buried this way. And as an ordinary person, I
14 am not convinced by their glossy explanations and
15 assurances.

16 We are cynical you know. There have been
17 too many assurances, too many safe decisions given to us
18 citizens which have proved to be false, which have ended
19 in disaster in the past.

20 Would this underground storage in the shield
21 become a dumping ground for more than our own waste since
22 I believe it is considered one of the most stable in
23 North-America.

24 Will Canada be forced to take the waste from
25 other countries to whom she has sold Candu reactors when



1 it becomes evident that these countries have no adequate
2 storage.

3 What about transportation to this dumping
4 area. Will it be by rail, by road, by air. How will it
5 be transported and what kind of regulations can be put in
6 place to guard against the spill and disaster.

7 To me it seems quite unbelievable that we
8 are even considering such a course of action. It is
9 proposed that the waste be stored in concrete containers,
10 put deep in excavated areas under the shield, the
11 containers surrounded by clay and the hole backfilled so
12 as to become inaccessible.

13 We know all these wastes will be... will
14 take many hundred of years to become harmless. Surely
15 we are going to be looking for methods of detoxification
16 or recycling these materials.

17 For the years to come, this primitive method
18 of disposal will surely be thought of as just that and
19 when the technology is in place to really take care of
20 them, we will have made them totally inaccessible. I s
21 this being considered? Will you consider it?

22 How much money is being spent on research
23 into detoxification of radioactive toxic materials.

24 I know a Canadian scientist named "Quarks", now working
25 in California, has won the Nobel prize for his work on



1 the understanding of the nucleus.

2 From this and other research, could come the
3 ability to detoxify radioactive waste. Is money being
4 spent in this way? Money on research I would think, is
5 basic to the issue.

6 What about research into recycling the
7 waste. Is this being done in significant way. What is
8 going to happen to the huge radio active structures left
9 when the existing power plants become so lethal they can
10 no longer be used. How will they be dismantled. Will
11 all of their parts have to be transported to dump sites.
12 What the tons of earth they have stood on? Will this be
13 transported too?

14 In the future, when health facts are out
15 about the dangers of dealing with this material, will we
16 get people willing to put their lives and those of their
17 families on the line, to do these jobs.

18 We are told that storage and dismantling
19 costs have been built into our rates. Can we believe
20 this when it's obvious that such costs cannot possibly be
21 realistically calculated with the uncertainty of the
22 problems we face.

23 How much is our Government and Atomic Energy
24 Canada doing to make Canadians aware of our appalling
25 misuse of energy. Are they seriously looking at the



1 whole idea of conservation and tough laws to see that
2 conservation is practised.

3 As a society, we would get used to them.
4 I believe we would work on them if we knew of the
5 alternatives.

6 How much research and money is being spent
7 on alternative methods of production of energy, on more
8 safe and sustainable methods. The idea that this could
9 cost us millions of dollars is not longer relevant in the
10 face of the danger and the foreseen cost of nuclear
11 power.

12 Do you and we think, that all this is
13 sensible when we consider the small amount of power we
14 now generate from nuclear power, I believe in the nature
15 of sixteen per cent (16%) of our power now used in
16 Canada.

17 Conservation could almost certainly take
18 care of this small percentage. One last question, I hope
19 that you are seeing this as a global issue since that is
20 what it is.

21 Your recommendations should have a strong
22 bearing on what other countries do in their own disposal
23 of wastes. In fact, this leads me to the last question.

24 Will you consider recommending that the
25 decision of the disposal of waste, not be left to each of



1 the countries who produce them but that some world forum
2 should be the group making this decision. It is obvious
3 that we cannot have different, some better, some worse
4 decisions being made.

5 A disaster can happen and the material we
6 are dealing with knows no boundaries. I don't know how
7 to end this presentation. I want so badly to convince
8 you of the need for such deep concern. I respect some of
9 the members of the panel who I have seen and heard in
10 other of their roles in their lives. You have a
11 difficult job ahead, please make the right decision for
12 all of us, thank you.

13 THE CHAIRMAN: Thank you very much, Miss
14 Hooper, it's a very thoughtful presentation. Are there
15 any questions which panel members would wish to put to
16 Mrs. Hooper while she's here?

17 DE. WILLIAM FYFE: Not so much a question as
18 a comment. I would like to thank you very much for
19 bringing your final point to our attention, that it is a
20 global issue and should be dealt with as such. I think
21 ... I think this is something that has to be very
22 seriously discussed.

23 MS. KATHY HOOPER: Thank you.

24 DR. WILLIAM FYFE: Thank you.

25 MS. KATHY HOOPER: Thank you.



1 THE CHAIRMAN: Thank you very much indeed.

2 ---Ms. Hooper withdraws.

3 THE CHAIRMAN: The next person who has asked
4 to speak to us this evening, this afternoon, excuse me,
5 is Miss Jocelyne Dupuis of the Society of Parents for the
6 Protection of the Environment. Is Miss Dupuis here?
7 She'll be back in a moment I guess, we'll just pause
8 until she returns.

9 RECESS

10
11 AFTER RECESS

12 THE CHAIRMAN: Miss Jocelyne Dupuis.
13 Please Miss Dupuis.

14 PRESENTATION BY MS. JOCELYNE DUPUIS:

15 Thank you. My name is Jocelyne Dupuis. I'd
16 like to welcome, welcome the panel members. Welcome
17 aboard.

18 Welcome aboard "Candu Airlines, flight
19 number 1990". We are pleased the panel has chosen
20 Canada's shiniest means of transportation, "Candu", the
21 airline that offers the means of transportation that's
22 ahead of its time.

23 And above all, it promises to deliver a
24 standard of living your grandparents could not have
25 dreamt of.



1 Not only will we meet your basic needs, many
2 alternative means of transportation can satisfy that.
3 No, we promise to pamper and spoil you. After all, we
4 have very clever people who work hard at figuring out
5 what your future needs will inevitably be.

6 Yes they can do anything to make your entire
7 journey on this world more comfortable. For through the
8 eyes of the great North-American mass media, we have seen
9 what the world should strive for, the ultimate in
10 civilized comfort.

11 Gone are the primitive means of brushing
12 your teeth, sharpening your pencils and drawing your
13 clothes. Together with AECL, we steer you on the road to
14 a better tomorrow, for you and your loved ones. So
15 welcome aboard.

16 Now that we're all here, we have some
17 business to take care of, very specific business. You
18 know, the one who's figuring out just how all of us will
19 get off this aircraft, we know that landing is not an
20 option for many generations yet. We've known that this
21 would be a problem since its launching and although I
22 would guess, most of us here, did not take any part in
23 the decision to launch this ahead of its time aircraft,
24 here we all are, wanting safe disembarkment for the
25 simple reason that we are all on it.



1 Yes, it's true that even way back when it
2 was being built, some people, you may remember them as
3 "anti", didn't feel comfortable with the fact that we
4 would be travelling at such great speed, on automatic
5 pilot. But nuclear transport charged ahead for it is the
6 nature of man to conquer and achieve power no matter what
7 the cost and I believe that it was also the way of
8 modern man thirty (30) years ago, to tighten his necktie
9 to keep him on track.

10 We now realize that necktie played a very
11 important role in our quest for energy. For as the
12 dollar figure grew, the track kept getting narrower and
13 the sure way to keep on track, was to tighten that
14 necktie never realizing that healthy blood cells carrying
15 oxygen from the heart to the brain would be affected.
16 That's completely cutting off other important things like
17 common sense, courage and will and above all, imagina-
18 tion.

19 So now, AECL has given you their blessings
20 to scope through this great country and see what Joe R.
21 Public, "R" as in resolve, can come up with for a solu-
22 tion in this very sticky mess.

23 As I understand, we are to look today, for
24 a solution to our nuclear waste problem in a very
25 specific way. We are not to ask why we're on this flight



1 to begin with. We're not to look out the window to see
2 if we're on a military flight.

3 We should never question what beautiful
4 alternative paths lay all around us. You know, when my
5 mother asked whether my presentation could make a
6 difference, as energy policies are already set, I
7 remained convinced that if the Berlin wall could come
8 down because of a few young couples who wanted something
9 better for their families, then maybe the voice of one
10 mother supported by her family, could be heard.

11 Do I have any recommendations? Yes, please
12 stop the madness of creating more nuclear waste until
13 such time as it is feasible to deal with. Loosen your
14 tie, take a breath of fresh air and imagine marriage
15 between dollars and alternative energy sources.

16 Those are my only two (2) recommendations,
17 thank you.

18 THE CHAIRMAN: Thank you very much Ms.
19 Dupuis for a presentation which, at least in tone, is
20 totally different from the others we've had. Are there
21 any questions, we would...

22 MS. DUPUIS: Yes, unfortunately I could...
23 I will send you a copy of my brief. I'm a busy mother,
24 four (4) kids and I didn't have a chance to handwrite it
25 all and I've made a decision to not use photocopiers



1 unless it's extremely, extremely urgent. So I will
2 handwrite to you and send it to you.

3 THE CHAIRMAN: We'd appreciate having that
4 as well but of course what you've had to say to us and
5 will in response to any question is being fully recorded.
6 We'll have that as well, but if you have a moment to put
7 it down in writing, we'd appreciate getting that from you
8 as well.

9 MS. JOCELYNE DUPUIS: Fine, thank you.

10 THE CHAIRMAN: Thank you. Are there any
11 questions which panel members may ... Dr. Lapierre?

12 DR. LOUIS LAPIERRE: Thanks a lot for your
13 presentation but I do have a question to ask of you. We
14 do have some waste that we have generated. You have
15 indicated that we should produce no more waste but have
16 you considered how we would want, even if we did stop...

17 MS. JOCELYNE DUPUIS: Um-hum?

18 DR. LOUIS LAPIERRE: ... producing waste,
19 what should we do with the waste that we now have? We
20 just can't forget about it.

21 MS. JOCELYNE DUPUIS: Yes, I understand and
22 I totally understand that's what we're here for and that
23 the panel members still have a difficult task.

24 What is being proposed, to store it in a
25 Canadian shield, I would compare it with parachuting out



1 of this aircraft. That's about what makes sense for all
2 I know. It's never been done before. We can't really
3 tell. I think we've bitten off a little bit more than we
4 could chew, because we're looking at solutions now,
5 thirty (30) years after the fact that we've produced all
6 of this. That's why my plea is to take a moment, pause
7 and stop producing more. We're at full capacity now at
8 Lepreau, or pretty close to it.

9 We should at least have the sense to stop.
10 Because we have to deal with transporting this to the
11 Canadian shield and all of that. I think we should just
12 stop. Leave it there and think about it. It might take
13 a little bit more time but for God's sake, let's not pro-
14 duce any more. Did you need more clarification?

15 DR. LOUIS LAPIERRE: Just a further step in
16 my question.

17 MS. JOCELYNE DUPUIS: Um-hum?

18 DR. LOUIS LAPIERRE: I guess if I understand
19 correctly, you think that the best alternative is to put
20 it in the Canadian shield. Did you ever think about
21 intermediate storage, surface storage versus
22 retrievability? Do you have any ideas on it?

23 MS. JOCELYNE DUPUIS: Well, I'm not an
24 expert at this and I've... my ideas are, I know that
25 there are scientists out there who are willing to work



1 with you, and with people who are looking to find the
2 solution with the problem we've already... with the waste
3 we've already generated. They are willing to find a
4 solution with AECL but not under the conditions that we
5 keep producing it before the solution is had. I would
6 suggest that you invite those people to work with you and
7 meet their prerequisite of stopping producing more and
8 work with them.

9 DR. LOUIS LAPIERRE: I understand we can
10 work with them but as a mother and a concerned citizen,
11 who took time from her busy schedule to come speak to us,
12 I would just want to know if you had any personal choices
13 as to what you would leave your children with?

14 MS. JOCELYNE DUPUIS: I'm not sure which is
15 the safest, I just don't know. And I don't think any of
16 us do quite frankly. I would be open if there are
17 wholehearted suggestions. I sort of understood that the
18 question of putting it in the Canadian shield was the
19 question of the hour. It seemed like it may be the most
20 logical thing to do but there's so many problems,
21 transportation, and all that, I mean it's just too big
22 for me.

23 THE CHAIRMAN: Thank you very much indeed.
24 It was good...

25 MS. JOCELYNE DUPUIS: You're welcome and



1 thank you.

2 THE CHAIRMAN: ... of you to come to speak to
3 us this afternoon Ms. Dupuis.

4 ---Ms. Dupuis withdraws.

5 We had that quite short list available to us
6 for this afternoon's session. But if there are other
7 people who have attended and would like to address us
8 while we are here, I hope they'll feel free to give their
9 names in and to step forward. If not then this will be
10 quite a short session of our scoping meeting this
11 afternoon but we shall be assembling again at seven
12 o'clock (07:00) this evening, at the same place and I
13 have even from those already registered, a considerably
14 longer list than was available to us this afternoon. I
15 appreciate that it's often easier for people to get out
16 for evening sessions after their work.

17 So I would really thank you for your
18 attendance this afternoon. Thank those who have made
19 presentations to us and we look forward to hearing more
20 people, from more people this evening.

21 I hope some of you may find it possible to
22 come back again in order to hear the variety of views
23 which will be expressed. Thank you very much indeed.

24 ---Recess taken.

25 ---On resuming at 7:00 p.m.



1 THE CHAIRMAN: Good evening, ladies and
2 gentlemen and welcome to, all of you, to this second part
3 of the scoping meeting being held by the Environmental
4 Assessment Panel here in St-John, an Assessment panel
5 which is reviewing the nuclear fuel waste management and
6 disposal concept.

7 The meeting will be conducted in English,
8 but you'll be able to listen to the proceedings of the
9 meeting in French through the headsets which are
10 available at the back of the room and of course, if
11 someone wishes to make a presentation in French, that
12 will be recorded and received.

13 Could I introduce the members of the panel
14 who are with me this evening. At the far left of the
15 table, to my left, your right, at the end of the table,
16 Mr. Peter Van Vliet, Mechanical Engineer from Regina, who
17 is also a member of the Senate of the University of
18 Regina.

19 Next to him, Dr. Lois Wilson from Toronto,
20 who is President of the World Council of Churches and a
21 co-director of the Ecumenical Forum of Canada.

22 On my immediate left, Dr. Louis Lapierre
23 from Moncton, professor in the Department of Biology of
24 the University of Moncton and also a chairman of the
25 Environmental Council of New Brunswick.



1 To my immediate right, Dr. William Fyfe,
2 from London Ontario. A Professor in the Department of
3 Geology and dean of the Faculty of Science at the
4 University of Western Ontario.

5 And to his right again, Ms. Louise Roy,
6 Environmental and Public Affairs Consultant from
7 Montréal. Ms. Roy is currently Vice-President of the
8 Quebec Foundation of the Environment, a member of the
9 Canadian Environmental Assessment Research Council.

10 My name is Blair Seaborn, I'm Chairman of
11 the panel. I reside in Ottawa. I'm retired but I served
12 previously as Deputy Minister of the Environment and
13 Canadian Chairman of the International Joint Commission.

14 We have all of us been appointed to this
15 panel by the Minister of the Environment. We have been
16 appointed in our personal capacities and we are enjoined
17 to give the best advice we can at the end of this whole
18 process without regard to any preconceptions which the
19 Government may have as to what it wants to receive.

20 We are a completely independent panel and
21 have the advantage of giving advice which is in our best
22 judgment, will be in our best judgment, the best advice
23 possible.

24 The panel secretariat members, Mr. Greyell
25 at the table up here and at the back of the room, Miss



1 Toller and Miss Susan Flanagan. I think Susan Flanagan
2 is there as well.

3 The review is being conducted in accordance
4 with the Federal Environmental Assessment and Review
5 Process, EARP. This panel has been asked in part, to
6 examine the nuclear fuel waste management and disposal
7 concept, a proposal of permanent of used nuclear fuel
8 deep in the granitic rock of the Canadian shield.

9 I'd like to say a few words about the
10 panel's mandate. The terms of reference state that the
11 panel is to review the safety and acceptability of the
12 concept for geological disposal of nuclear fuel waste in
13 Canada as has been proposed by Atomic Energy of Canada
14 Limited.

15 In addition to the AECL proposal, we shall
16 examine a broad range of nuclear fuel waste management
17 issues, including long term management, transport, and
18 environmental, social and economic effects. We shall
19 look at approaches to nuclear fuel waste management and
20 disposal being developed elsewhere in the world.

21 Since site selection will not occur until a
22 disposal concept has been accepted as safe, this panel
23 will not consider any specific sites but will review the
24 potential availability of them and the methodology and
25 criteria required for site selection.



1 I'd like to say a few words also about what
2 is not in the panel's mandate and will therefore not be
3 addressed in this review.

4 The energy policies of Canada and the
5 provinces, the role of nuclear energy within these
6 policies including the construction, operation and safety
7 of new or existing nuclear power plants.

8 Fuel reprocessing as an energy policy and
9 the military applications of nuclear technology. All of
10 these are not included in our mandate.

11 I would like to make it perfectly clear
12 however that the panel is very much aware of the broader
13 concerns related to the use of nuclear materials and the
14 use of nuclear power for the generation of electricity.

15 We have been urging on the Federal
16 Government, a broader review of the comparative
17 environmental implications of the various methods of
18 generating electricity.

19 I understand that some steps have now been
20 taken to get such a review under way and I hope that it
21 will in fact be inaugurated before too long.

22 The purpose of these scoping meetings is to
23 allow participants to identify issues that need to be
24 addressed in the environmental impact statement that will
25 be prepared by Atomic Energy of Canada Limited.



1 The panel is not requesting the presentation
2 of opinions of the substance of the disposal concept at
3 this time. Public hearing will be held later to discuss
4 whether AECL's proposal is acceptable.

5 Following the present series of meetings
6 which, and this is the third (3rd) week, there are two
7 (2) more weeks to go, the panel will prepare draft
8 guidelines for the preparation of the Environmental
9 Impact Statement.

10 And those draft guidelines will be made
11 available to the public and we would like your further
12 comments on the drafts before we finalize them.

13 After the handing over of the guidelines
14 which are in fact directed as to AECL, there will then be
15 a period of probably a (1) year to a year and a half (1½)
16 while AECL prepares its comprehensive and we hope
17 adequate environmental impact statement. That document
18 will indeed, will in due course also be made public, once
19 the panel is satisfied that AECL has addressed to it in
20 a satisfactory fashion, all the items which we have
21 identified in the guideline.

22 It will be made public and on the basis of
23 that publicly available document, which we want to have
24 in the hands of the public for at least ninety (90) days,
25 we will hold a series of public hearings. At that point,



1 participants will be asked to discuss the acceptability
2 or otherwise of the disposal concept in detail.

3 As a final step of the process, the panel
4 will take into account all the comments submitted to it,
5 prepare its report to the ministers of the Environment
6 and of Energy, Mines and Resources. Ours is an advisory
7 role to those two (2) ministers, the final decision will
8 rest with them.

9 I would ask that those registered to speak,
10 attempt to summarize their concerns in fifteen (15)
11 minutes unless they have previously requested an
12 additional ten (10) minutes time.

13 The panel will pay equal attention to
14 written and oral statements. We may ask questions of
15 clarification following each presentation. Anyone who
16 would like to make a presentation to the panel, who has
17 not yet registered, we'd still like to hear from you.

18 Please speak to any of the members of the
19 secretariat and we will get your names on the list for
20 this evening, provided time permits hearing from you.

21 Court reporters are here, they will record
22 the proceedings of each meeting and the transcripts will
23 be made available in due course, to designated libraries.

24 They'll also be available from the FEARO
25 Office in Ottawa. Moreover, we will be happy to accept



1 written submissions, identifying issues and concerns
2 anytime up to and including the end of this month,
3 November 30th.

4 I wonder if I could... I would now be able
5 to call upon our first (1st) speaker for this evening,
6 Mr. Peter Powning, speaking on behalf of the Sussex
7 Society for Public Interest. If Mr. Powning is here,
8 perhaps he could come up to the table so both we and the
9 panel and the members of the audience can hear him and
10 see him doing his presentation.

11 No sign of Mr. Powning at the moment.

12 FROM THE FLOOR: I believe Mr Powning has to
13 drive from Sussex so perhaps the next speaker could
14 go ...

15 THE CHAIRMAN: That's no problem at all, if
16 he arrives a bit later, we'll just slip him in when it's
17 possible to do so. The next group I had on my list
18 therefore, will be People against Lepreau 2 and Julie
19 Galbraith, I think, wishes to speak on behalf of that
20 group. Miss Galbraith, would that be satisfactory that
21 you come forward now.

22 MS. JULIE GALBRAITH: There will be myself
23 and David Thompson, both presenting.

24 THE CHAIRMAN: Fine, very good if he could
25 join you then. May I just say that if any of you have



1 written briefs, it is helpful to us so that we can follow
2 carefully, more carefully what you're going to say but
3 of course, if it's an oral presentation only, this will
4 all be recorded and transcribed in the proceedings of
5 this meeting of the panel. I believe that copies were
6 requested. That's very kind of you, thank you very
7 much.

8 PRESENTATION BY MS. JULIE GALBRAITH:

9 Now, I'm Julie Galbraith. Thank you for
10 coming to New Brunswick. I know it's a big trip and that
11 you've been busy.

12 I want to report as a result of ten public
13 consultation meetings that people against Lepreau 2 held
14 across New Brunswick in the month of October. Individual
15 reports of each meeting are attached to the back of the
16 report and I would like to encourage the panel to read
17 these individual reports very carefully because I think
18 that that will give a good indication of how far reaching
19 the concerns of New Brunswickers are and to what extent
20 the people of New Brunswick wish to be involved in this
21 entire process.

22 And please note that the use of "we" in this
23 report is a direct representation of the people of New
24 Brunswick. It was just easier to say it in one voice.

25 Terms of reference, foremost among the



1 concerns and the concerns most frequently voiced by New
2 Brunswickers who attended our meetings held around the
3 province in October, are the terms of reference for this
4 review.

5 Page 4, paragraph 3 of the terms of
6 reference says:

7 "The energy policies of Canada and the
8 provinces, the role of nuclear energy within
9 these policies, including the construction,
10 operation and safety of new or existing
11 nuclear power plants, fuel reprocessing as
12 an energy policy and military applications
13 of nuclear technologies are issues that are
14 outside the panel's mandate and should not
15 be addressed during this review."

16 These very issues which are excluded from the review are
17 at the top of the list of issues and concerns which we
18 and the public of New Brunswick wish to address.

19 We therefore request that the panel go back
20 to the Minister and insist that the terms of reference be
21 changed to allow for a full public review of the issues
22 excluded on page 4, paragraph 3. We are fully aware of
23 indications that there may be another environmental
24 impact assessment and Review on energy policy which may
25 address these issues. However, many ministers in



1 various governments over the years, have promised there
2 would be a public review of the nuclear industry but none
3 of these promised public reviews have ever been carried
4 out.

5 Until such time as an environmental impact
6 assessment and Review on policy is arranged, we cannot be
7 sure that it will ever occur.

8 Furthermore, we cannot be sure that the
9 terms of reference for any such review would not also
10 exclude these issues of concern from being addressed.

11 It is interesting to note that both
12 opponents and proponents of nuclear energy who attended
13 our public meetings, agree that the terms of reference
14 for the review should be broadened to examine energy
15 policy and the environmental effects of the productions
16 of energy from all sources so that we can effectively
17 plan to minimize the environmental impact on the planet.

18 Changes must be made. The public is
19 extremely cynical of the environmental impact assessment
20 and Review process. And many see it as a kiss of death
21 to the environment.

22 Moratorium on new reactors and waste storage
23 facilities. If this review is to have any public
24 credibility, it is imperative that a moratorium be placed
25 on the construction and licensing of any new reactors



1 which will lead to the production of more waste or any
2 new storage facilities for spent fuel until this review
3 is completed. We therefore ask that the panel make this
4 request to the minister of the environment.

5 What if? What if the proposed geological
6 storage concept is proven not to be acceptable. Will
7 nuclear reactors and the production of waste be phased
8 out. An answer must be provided now before this review
9 proceeds any further.

10 Release information on potential waste
11 storage sites. Atomic Energy of Canada Limited, AECL
12 must release to the public, without delay, the complete
13 list of potential nuclear waste storage sites which they
14 have identified. AECL must also release to the public,
15 complete information on all site studies and
16 investigations which have been carried out to date, are
17 under way or are planned.

18 Storage not disposal concept. The people of
19 New Brunswick are adamant that AECL's concept be labelled
20 a storage concept rather than a disposal concept. The
21 rationale behind this is that the word disposal might lead
22 people to believe that nuclear waste has permanently been
23 disposed of, thus not requiring further care. Since high
24 level nuclear waste will need to be monitored for several
25 thousand years, it is in fact being stored not disposed



1 of. In order to foster a commitment from future
2 generations with regard to carefully managing high level
3 nuclear waste, it is essential not to mislead future
4 caretakers into believing that the waste problem has been
5 permanently taken care of and solved. Thus storage
6 concept is a more accurate term for AECL's proposal.

7 David is now going to give some information
8 on a request and this request came out at every meeting
9 from New Brunswickers so David is now going to address a
10 specific issue that we had no choice but to bring.

11 PRESENTATION BY MR. DAVID THOMPSON:

12 This is the issue of the canister storage at Lepreau
13 which the AECEB refused to refer for the environmental
14 impact assessment and Review.

15 After a room full of people flooding out
16 into the hall in this very room, plus seventeen (17) out
17 of nineteen (19) briefs presented to them one (1) evening
18 in June, called for. And we like to address this to the
19 panel once more in response to what's happened from the
20 Atomic Energy Control Board and their contempt for the
21 people of New Brunswick.

22 But before I do, I'd like to make a remark
23 in respect to some of the Chairman's opening remarks and
24 the Chairman mentioned tonight that there would be a
25 ninety (90) day review period at least for the



1 Environmental Impact Assessment Report that might come
2 from this here, proceeds that far.

3 And if we have a lot of concerns about that,
4 I think we would want a long, long period to review that
5 report.

6 Citizens groups are at a deficit. We don't
7 have high priced technical people that can be flown in
8 from wherever to meet with this and that sort of thing.

9 We are spending our volunteer time often to
10 do our research work. Ninety (90) days would not be
11 acceptable. I would think something like more, well I
12 would think that the minium would be several months for
13 a review period for any Environmental Impact Statement.

14 Anyway, back to the canister issue at
15 Lepreau. First, giving a little bit of history. I
16 think we have to make a judgment on it. I think we have
17 to hear the whole story right from day one until what
18 the Atomic Energy Control Board decided in June of this
19 year. Anyway, with the history... With the building of
20 the Point Lepreau Nuclear Generating Station, the people
21 of New Brunswick were told by officials of NB Power and
22 AECL that there would be no storage of spent fuel in this
23 province, other than the ten (10) years provided for by
24 the plant's spent fuel bay.

25 At the end of ten (10) years, New Bruns-



1 wickers were told NB Power would begin shipping the
2 older, cooled fuel out of the province to a central
3 repository.

4 The Point Lepreau I Environmental Impact
5 Assessment and Review Panel, in their report Minister of
6 Environment, wrote that they had been told by the
7 department of energy, mines and resources that the Point
8 Lepreau Station

9 "will include facilities for underwater
10 storage for the spent fuel produced over
11 about ten (10) years of operation.

12 Before the end of that time, the used fuel
13 will be shipped to a central storage
14 facility. Logical sites would be in the
15 province of the largest users of nuclear
16 power."

17 And that's quoting from the report of the Lepreau I
18 Environmental Impact Assessment and Review Panel.

19 On the basis of this report, the Minister of
20 Environment gave Point Lepreau the OK, in spite of
21 overwhelming public opposition expressed during public
22 hearings. One of the major concerns expressed by the
23 citizens during these hearings in 1975, was the lack of
24 a demonstrated solution to the long term waste problem.

25 By 1979, the waste picture had changed. In



1 July of that year, the Energy Committee of the New
2 Brunswick Legislature was told by Dr. Terry Thompson,
3 Director of Public Affairs for NB Power, that NB Power
4 had already excavated a site for a second spent fuel bay
5 to hold another ten (10) years supply of waste, once the
6 first (1st) bay was filled.

7 At that point, NB Power was prepared to
8 double its on site storage time but using the technology
9 originally approved and licensed at the site. In 1983,
10 NB Power announced plans to build a second Candu 600
11 Megawatt reactor at Lepreau. The next year, a joint
12 federal provincial environmental impact assessment and
13 Review was conducted on this proposal.

14 The report of the review panel states that
15 in quotes:

16 "Used fuel would be stored in fuel storage
17 bays adjacent to the reactor building and
18 that at or before the end of the life of the
19 plant, the fuel would be transferred from
20 the bays to another location for
21 reprocessing or permanent disposal."

22 The report also states quote:

23 "At present, used fuel from Point Lepreau
24 and other nuclear generating stations in
25 Canada is stored in water filled bays. In



1 recognition of this, Canada has initiated a
2 national plan and associated research and
3 development program for safe disposal of
4 used fuel and other high level radioactive
5 waste in stable granite rock formations."

6 There is nothing in the Lepreau 2
7 Environmental Impact Assessment and report to indicate
8 the possibility of long term storage of spent fuel not
9 only on the site but in particular in dry storage, a
10 technology not addressed in either the Lepreau I or the
11 Lepreau 2 Environmental Impact Assessments.

12 The public was not informed of plans for
13 above ground dry storage of spent fuel until a hastily
14 news conference held by NB Power was carried out on
15 September 22nd, 1988. Immediately, the Conservation
16 Council of New Brunswick called for NB Power's proposal
17 to be scrutinized through an Environmental Impact
18 Assessment Process.

19 And I might at this point just mention to
20 the panel that when this Lepreau 2 Environmental Impact
21 Assessment and Review was held a few years ago for this
22 Candu, second Candu 600 megawatt reactor at Lepreau,
23 which of course now has gone by the board, environmental
24 groups in the province participated in the scoping ses-
25 sions, the early part of the review but then boycotted it



1 after the scoping sessions because the review was not
2 changed to address their concerns. And this could well
3 happen in this review, in future reviews as well. I
4 think... I think that that review in itself had little
5 credibility with anyone. About the only people that went
6 who were there, at any of those meetings that were held
7 after the scoping sessions, were just people who were
8 proponents to the plant.

9 Anyhow, going on, recent events early this
10 year, as New Brunswick became aware that NB Power's
11 proposal for dry storage of nuclear waste at Lepreau was
12 likely to proceed without an Environmental Impact
13 Assessment, the call for an Environmental Impact
14 Assessment became louder and very widespread. This
15 prompted the New Brunswick government to require NB Power
16 to hold two public information meetings this past
17 February, one in West Saint-John and the other in Maces
18 Bay.

19 At the Saint-John meeting, the NB Power
20 panel attempted to prevent the Conservation Council
21 representative at the meeting from speaking. Also
22 misleading and evasive answers were given to members of
23 the audience who asked questions.

24 Mr. McKenzie, Manager of NB Power's nuclear
25 program and former plant manager at Lepreau told the



1 audience that no one had been asking for an Environmental
2 Impact Assessment and Review of the dry canister storage
3 proposal until just recently.

4 He should have known well that the
5 Conservation Council had been calling for an En-
6 vironmental Impact Assessment and Review ever since the
7 proposal had been first (1st) announced in September of
8 1988.

9 The Maces Bay meeting was held in a small
10 hall which was largely filled by NB Power officials,
11 nuclear plant employees and news reporters. The press
12 was especially anxious to get more information on the
13 then recent incident involving the contamination of the
14 drink cooler at the station with radioactive heavy water,
15 which some plant employees drank. Those people who
16 attended the Maces Bay were not even told that any such
17 thing as an Environmental Impact Assessment and Review
18 process existed.

19 After the meetings held by NB Power which
20 were little more than propaganda sessions designed to
21 appease and condition the public, the People Against
22 Lepreau 2 Campaign, the Conservation Council and many
23 other concerned individuals and organizations began to
24 call upon the Atomic Energy Control Board to refer the
25 dry canister storage proposal for a Federal Environmental



1 Impact Assessment and Review.

2 In April of 1990, we received a copy of a
3 memorandum from the Atomic Energy Control Board's
4 director of Fuel Cycle and Materials Regulation to the
5 board. This memorandum said an Environmental Impact
6 Assessment and Review was unnecessary and recommended
7 against referral of the proposal.

8 The People Against Lepreau 2 Campaign also
9 received a letter informing us that the Atomic Energy
10 Control Board would hold a meeting in Ottawa on May 3rd,
11 at which time a decision regarding whether the proposed
12 project would be referred for an Environmental Impact
13 Assessment and Review would be made by the board.

14 Immediately concerned New Brunswickers began
15 to call on the Atomic Energy Control Board to hold this
16 important meeting in New Brunswick rather than in Ottawa
17 so as New Brunswickers would be able to presents their
18 concerns directly to the board.

19 Finally, after much persuasion, the Atomic
20 Energy Control Board agreed to come to New Brunswick to
21 hold the meeting after receiving a request from
22 Environment Minister Vaughan Blaney and a date for the
23 meeting was set for June the 4th.

24 At the June 4th meeting, the room where the
25 meeting was held and that was this particular room, was



1 completely filled to standing room only with people
2 flowing into the hall. People were anxious to have an
3 Environmental Impact Assessment and Review of the dry
4 canister storage proposal.

5 The meeting lasted until near midnight and
6 seventeen (17) briefs were presented, fifteen (15) of
7 which called upon the Atomic Energy Control Board to
8 refer the proposal for an Environmental Impact Assessment
9 and Review with numerous substantive and unaddressed
10 concerns being raised by the presenters.

11 On June 25th, the Atomic Energy Control
12 Board announced that they would not refer the proposal
13 for dry canister storage of nuclear waste at Lepreau for
14 an Environmental Impact Assessment and Review.

15 In making their decision, the Atomic Energy
16 Control Board said that dry canister storage of nuclear
17 fuel waste is a well known and proven technology which is
18 used at four (4) other locations in Canada.

19 We were astounded to hear this as it was
20 clearly pointed out to the Atomic Energy Control Board of
21 the meeting that night, that the limited use of dry
22 canister storage elsewhere under completely different
23 conditions and circumstances, was not a logical or
24 credible reason for exempting the Lepreau proposal from
25 an Environmental Impact Assessment and Review.



1 If this were a valid rationale for exempting
2 projects, then there would be no need to carry out
3 Environmental Impact Assessment and Reviews for dams,
4 pipelines, bridges, causeways, highways, offshore oil
5 drilling or pretty near anything else unless it was
6 completely new technology. And most of the reviews which
7 have taken place in Canada over the years to date, would
8 never have been carried out. This is of course
9 ridiculous. As things stand now, there's not dry storage
10 of storage of spent nuclear fuel at any operating nuclear
11 plant in Canada.

12 Lepreau would be the first (1st) to set this
13 precedent. Dry canisters are used only at two (2)
14 nuclear stations which have been permanently shut down.

15 The only other locations where canisters are
16 in use are at two AECL research facilities. None of
17 these limited applications of dry canister technologies
18 were ever subjected to any type of an EARP or any other
19 type of an independent review.

20 At Gentilly 1 and Douglas Point, the two (2)
21 nuclear stations which have been permanently shut down,
22 the canisters were used to deal with the problem for
23 which there were few other practical solutions.

24 The canisters at these shut down nuclear
25 stations are finite in number as no more waste is being



1 produced at these dead nuclear reactors.

2 At Gentilly 1, there are only eleven (11)
3 canisters and these are located inside the gutted former
4 turbine building.

5 At Douglas Point, there are forty-seven (47)
6 canisters and these are located immediately adjacent to
7 the former reactor building.

8 At Lepreau, the situation is very different.
9 There will be two (2) types of waste storage operated at
10 two (2) separate locations. The spent fuel bay or water
11 filled pool at the reactor site and the dry canister
12 storage facility in a wooded area remote from the plant.

13 Indeed, the two (2) spent fuel waste storage
14 systems would still be operated for seven years after the
15 reactors life is eventually over and it has been
16 permanently shut down.

17 Also at Lepreau, there could eventually be
18 hundreds (100+) of canisters and perhaps more if the
19 threatened second (2nd) reactor at the site ever becomes
20 a reality.

21 Note also that the natural setting and the
22 surrounding biological communities are very different at
23 Lepreau than at the other areas where the waste is being
24 stored.

25 And I might also add at this point that if



1 the geological concept is not proven to be valid, that
2 these silos could go on and on in number, there could be
3 thousands of them after a time, if there was no other
4 method found to dispose of it.

5 The life of them I guess is estimated to be
6 some fifty (50) years at which time they would need a
7 replacement with... with other silos and after another
8 fifty (50) years, those silos would need replacement and
9 on and on, while we'd continue to pile up low level
10 radioactive waste from the remains of the silos and
11 equipment and that sort of thing.

12 Anyhow, going on to the crux of the matter
13 which I'd like to address...

14 THE CHAIRMAN: Excuse me, excuse me Mr.
15 Thompson, I had indicated that we'd requested people to
16 try to keep their comments to fifteen (15) minutes unless
17 they'd asked for ...

18 MS. JULIE GALBRAITH: We've requested
19 twenty-five (25).

20 THE CHAIRMAN: I'm sorry...

21 MR. DAVID THOMPSON: We've requested twenty-
22 five (25)...

23 THE CHAIRMAN: That's alright, I didn't...
24 that word did not reach me, I apologize, please continue.
25 You're still within time, I just wanted to remind you



1 where the time was going.

2 MR. DAVID THOMPSON: Thank you, well pardon
3 my sensitiveness on the matter but given the treatment
4 that we received while sitting at the same position here
5 from the Atomic Energy Control Board in June, we're
6 becoming a little paranoid now. I think a lot of people
7 here saw what happened to us then. (applause) Thank you,
8 people in the audience.

9 Anyhow, a review is required and I guess
10 that's the crux of the matter which we want to address to
11 the panel tonight. An Environmental Impact Assessment
12 and Review of the Lepreau dry canister storage facility
13 which I might add, is now under construction, is urgently
14 required. Therefore, we request that the panel include
15 a full Environmental Impact Assessment and Review of dry
16 canister storage proposal at Lepreau within this Review.

17 Furthermore and this is the important part,
18 we ask that the panel request that no permission be given
19 to transfer spent fuel from the spent fuel bay to the dry
20 canister storage facility until the Environmental Impact
21 Assessment and Review has been completed.

22 The dry canister storage review would
23 examine the following concerns and I'll outline those
24 concerns:

25 1: It would examine in detail the relative



1 safety of the existing spent fuel bay storage system and
2 the proposed dry canister storage system.

3 2: It would examine the potential radiation
4 emissions from the current spent fuel bay storage system
5 and the proposed dry canister storage system as well as
6 the proposed combination of both systems in relation to
7 releases to the biosphere and subsequent plant, animal
8 and human exposure.

9 3: It would make available and readily
10 accessible for public review all technical information on
11 the canisters as well as the transportation and removal
12 equipment.

13 4: It would examine in detail all potential
14 accidents which could occur during the removal and
15 transportation of fuel from the spent fuel bay to the dry
16 canister storage facility and the potential environmental
17 and health impacts of such accidents.

18 5: It would make available and readily
19 accessible for public review - and I might add that
20 things in the past haven't been made readily accessible
21 for public review. We've been asked to comment on such
22 things as safety studies and reports and things that AECL
23 has on file, have never been made available to us - so I
24 might, I might add "readily" accessible for public
25 review, all safety studies, reports and data from any



1 tests which have been carried out on equipment and
2 containers which would be used to remove, transport and
3 place spent fuel from the spent fuel storage bay to the
4 canister storage.

5 6: It would make available and readily
6 accessible for public review, emergency contingency plans
7 and details of emergency equipment.

8 7: It would examine and assess the
9 potential for spent fuel to be removed from the spent
10 fuel bay compared to the proposed dry canister storage
11 facility, for purposes of reprocessing, sale or diversion
12 for military or other such purposes, both with and
13 without government permission.

14 8: It would examine, assess and compare in
15 detail the vulnerability of the spent fuel bay, the dry
16 canister storage facility and the combination of both to
17 terrorist attack.

18 9: It would examine and assess the use of
19 dry storage canisters for spent fuel at a large operating
20 nuclear plant as opposed to dormant facilities, including
21 the security.

22 MS. JULIE GALBRAITH: How much time do we
23 have left?

24 THE CHAIRMAN: Just coming up to 25 minutes,
25 that ... I'll turn a blind eye for a few minutes,



1 certainly... We want to hear this very comprehensive
2 presentation.

3 MS. JULIE GALBRAITH: O.K. Funding for
4 public participation. New Brunswickers request that the
5 blatant financial inequality between AECL and public
6 interest groups be addressed during this review. This is
7 particularly relevant during this stage of the process
8 because active participation, quality of presentations,
9 and the preparation of documents, is in large part econo-
10 mic.

11 The public has never been provided with the
12 financial means to consult with specialists who may have
13 grave misgivings about the nuclear waste disposal concept
14 as outlined by AECL. The public must be afforded access
15 to quality information on all aspects of a nuclear waste
16 disposal concept. Views that are provided only by the
17 proponents of such a concept are not enough on which to
18 base competent decisions.

19 New Brunswickers also request that AECL
20 determine and identify clearly all further money to be
21 spent on the promotion of the nuclear waste disposal
22 concept and nuclear power in general. Equal funding must
23 then be provided for public interest groups to present
24 varying views. Only then, will a balanced picture be
25 available to those who need it most, the general public.



1 To date, the general public has never been
2 given a balance of views, rather information has been
3 weighted toward the views of the nuclear industry. A
4 balance is essential if decisions are to be made that
5 will directly affect many future generations. I f
6 sufficient intervenor funding is not made available for
7 full public participation, the review process lacks
8 credibility.

9 Glossy T.V. advertisements are always
10 misleading if the opposing views or products are denied
11 an appearance. And I guess, we're going to have to wrap
12 up here because of time but we do go into social and
13 ethical concerns, geological concerns and many other
14 things.

15 But it's interesting to know that throughout
16 our meetings, people were really, really angry at the TV
17 advertisements that AECL has been doing with all the
18 gloss and the "hife" and the elevator music. And never
19 getting to hear another view of things. And so there we
20 go and we're going to talk one more thing. This will
21 take one minute, I promise.

22 Because, we found that at the odd meeting
23 that there was perhaps a problem with people coming out
24 and people speaking out and I guess, if you want to talk
25 to us privately about what makes us stay around the area



1 around the Lepreau station would be a good example.

2 Intimidation. At our public consultation
3 meetings these disturbing concerns were voiced.
4 Intimidation keeps people from speaking out on nuclear
5 energy issues in New Brunswick.

6 Many citizens of New Brunswick feel that
7 they cannot speak out on nuclear issues because of the
8 fear of reprisal in the way job loss or loss of future
9 employment opportunity for them and their families.

10 Concern was expressed that we are living in
11 a society which intimidates individuals from speaking up.
12 These concerns must be addressed.

13 And AECL, we want to address specifically
14 what will be done to encourage to speak out on nuclear
15 issues and relieve the fears that people in New Brunswick
16 have.

17 What will be done to ensure and guaranty
18 that people who speak out on nuclear issues and their
19 families, that they will not suffer reprisals of job loss
20 or employment opportunities.

21 And if you care ... we cannot ... that would
22 take a whole other report.

23 THE CHAIRMAN: Thank you very much.

24 MS. JULIE GALBRAITH: Thank you.

25 THE CHAIRMAN: Please stay a moment in case



1 there are any points of clarification which panel members
2 would like to put to you. I'm sorry to have to be
3 reminding you of time that is, but of course there are
4 many others this evening. Let me make this point
5 however, you've presented us with a very detailed and a
6 comprehensive report. We have listened to you, we will
7 be all studying this report, not only that which you've
8 been able to deliver but the remainder of it as well.

9 And it is of quite equal ability including
10 ... there with your oral presentation this evening, let
11 me assure you of that.

12 Could I ask members of the panel if there
13 are any questions that ... for clarification they'd like
14 to put? Yes, Dr. Fyfe?

15 DR. WILLIAM FYFE: I think first, I would
16 like to congratulate you very much, on an extremely clear
17 document and no doubt, you have raised some top
18 questions.

19 But one thing, I think it was Mr. Thompson
20 was reading this part, it raises I think a real question,
21 an ultimate one, maybe. You say one of the major
22 concerns expressed by citizens during the hearings was
23 the lack of a demonstrated solution to the long term
24 waste problem. Now considering that we talk in terms of
25 thousand of years, do you consider this that it is even



1 remotely possible that anybody can demonstrate a
2 solution?

3 MS. JULIE GALBRAITH: No.

4 MR. DAVID THOMPSON: Not at present but...

5 DR. WILLIAM FYFE I don't mean at present,
6 ever.

7 MR. DAVID THOMPSON: Well, things happen...

8 MS. JULIE GALBRAITH: But perhaps that...

9 DR. WILLIAM FYFE: How would you demonstra-
10 te...

11 MS. JULIE GALBRAITH: ... points out the
12 futility of the whole nuclear industry...

13 DR. WILLIAM FYFE: How would you demonstrate
14 a ten thousand year waste disposal, demonstrate?

15 MS. JULIE GALBRAITH: Precisely, it can't be
16 done.

17 DR. WILLIAM FYFE: I wanted to know if you
18 had any advice to us and how it would be demonstrated?

19 MR. DAVID THOMPSON: Well, it may not be
20 able to demonstrate that and clearly if it's not possible
21 to demonstrate that it can be managed, then... then the
22 question again once arises, then if we don't know what to
23 do with it, then probably there's not too much sanity in
24 producing more of it. I think that that particular
25 comment came up at several of the ten meetings that we



1 held around the province and that's why, you know, it has
2 to be questioned at the onset of the review whether or
3 not any more nuclear reactors are going to be given to go
4 ahead to produce more or licensed until this review is
5 completed or whether or not any such untested means as
6 these silos at Lepreau which have never had an
7 Environmental Impact Assessment and Review, are going to
8 be allowed to be licensed and used. And if the review is
9 going to have any credibility whatsoever, then you know,
10 everything has to stop where it is now. We've got the
11 waste that we've got. It's a serious problem, we have to
12 do something with it. But probably, well there's no
13 probably about it in our minds, we shouldn't be producing
14 any more.

15 THE CHAIRMAN: Dr. Lapierre?

16 DR. LOUIS LAPIERRE: Just one question to
17 David I guess, accepting the fact that we now have waste
18 even if we stop producing more, we now have some, could
19 you give me some indication of what your thoughts are or
20 what information you gathered from the people you spoke
21 to as you went through the province regarding the
22 possibility of intermediate storage, surface storage or
23 deep disposal?

24 MR. DAVID THOMPSON: Well, I would say that
25 there were mixed views on it at the meetings. I think,



1 I think more people were of the opinion that it shouldn't
2 be put in the ground where it would be unretrievable
3 because, eventually, it would get into ground water.

4 And I think there was a favouring of keeping it where it
5 could be watched and looked after. Many people suggested
6 that it be housed as close as possible to where the
7 people were producing it lived and to where the politi-
8 cians were since they were the people responsible for
9 making it.

10 MS. JULIE GALBRAITH: That's sounds funny
11 but that really was offered as a solution and not to be
12 taken lightly. Most people felt that it should be kept
13 near the plant, that, you know, then we didn't get into
14 transportation problems and whatever, that if we were
15 going to produce it for God's sake don't start moving it
16 around.

17 MR. DAVID THOMPSON: I think the question
18 here though comes down to the matter of looking at all
19 the options. You know, if we're looking at intern
20 storage, then we look ... have to look at all the
21 options. We can't opt for the first (1st) thing that
22 comes along which NB Power has done, because of their
23 stated view that it's a few million dollars cheaper over
24 other means. And that's the silos, and the silos have
25 not, they're the canisters, whichever you want to call



1 them, they're often referred to as, the very same thing.

2 But to go ahead with that or anything
3 without an Environmental Impact Assessment and Review and
4 a full review that covers everything, it's not
5 acceptable. And we got that message very clearly at all
6 our meetings. That's why I dealt at such length with the
7 canister issue tonight.

8 DR. LOUIS LAPIERRE: If... if you don't want
9 the... I guess if I heard you correctly is you would
10 rather the waste be kept close to the sight and not
11 transported. Have you given any thought canisters don't
12 seem to appeal to you, at the present time. Do you have
13 any thought of other storage methods?

14 MR. DAVID THOMPSON: Well the... at least in
15 a short term, the most appealing thing is to leave the
16 damn stuff right where it is, right in the spent fuel
17 bay. Every time it's moved or changed, it presents a
18 possibility of an accident or a problem. And the best
19 thing to do would be to leave it right in the spent fuel
20 bay at least until an Environmental Impact Assessment and
21 Review of the silo or canister concept was completed.

22 It's not... it may be an option but it's not
23 option until that kind of an intensive review is
24 completed. And one which gives us all the technical
25 information and all the tests of all the components



1 involved and all the transportation and removal systems
2 so it can be completely analyzed by independent people
3 which has not been done today. Then until that happens
4 then, the only acceptable thing is to leave the waste
5 where it is, in the spent fuel bay at Lepreau.

6 MS. JULIE GALBRAITH: I guess we've also got
7 to face the facts that we don't know right off the bat
8 what should be done with it.

9 We do know that people feel it's insane to
10 keep producing it. But also know that we need access to
11 independent scientists. And when I mean independent,
12 they've got to be really independent scientists because
13 the proponents of nuclear energy obviously aren't going
14 to be as neutral as they should be. I don't think that
15 they possibly could be. So that's what we're requesting
16 that we have access to independent sources and that's
17 there's funding made available so that we can have access
18 to independent sources.

19 MR. DAVID THOMPSON: I might add that you
20 know, they must not be only independent but they must be
21 seen to be independent by the public. Obviously,
22 organizations like the Atomic Energy Control Board, after
23 the fiasco here in June, have no credibility in St-John
24 or in New Brunswick anymore. And good riddance to them
25 and I hope that we've seen the last of them.



1 THE CHAIRMAN: I used a rather shortened
2 form of my introduction to this evening's session from
3 what I used this afternoon, which was our first (1st)
4 session here in St-John. And while it may not be
5 entirely what you are looking for, I should stress that
6 we have a scientific review group appointed by this
7 panel, not appointed by the Government or anyone else.
8 It's appointed by this panel to assist us in the
9 understanding of those very difficult scientific and
10 technical matters of deep rock disposal.

11 Now they have not been charged with anything
12 to do with canisters but we have a group of scientists
13 who are I think by all accounts, among the most eminent
14 in Canada and a few from the United States as well, to
15 complete that. And we are counting on them to assist us
16 strongly, in getting very objective and very good science
17 to support us. I'm just mentioning that that does exist.

18 MR. DAVID THOMPSON: If I could respond to
19 that, I'm not very good at names, I meet so many people
20 every day and hear so many names that they don't always
21 stay in my head but, I looked on the environmental
22 network web a few days ago. I guess actually more than
23 a few days ago but two (2) of the people on that panel
24 were under question from environmental groups. I don't
25 know if you heard anything about that yet or not.



1 MS. JULIE GALBRAITH: We will get the names
2 to you if you'd like and why they're being questioned.
3 Because it is important that Canadians perceive this as
4 being a truly valid process.

5 THE CHAIRMAN: I appreciate that fully.
6 Yes?

7 MR. DAVID THOMPSON: I think the rationale
8 for the questioning was that these people, while they
9 worked at universities that they had contracts with AECL
10 to carry out research on this particular geological
11 storage in different ways and they are under question, so
12 anyway, we could get the people who have the most
13 information on that to forward it to you as soon as
14 possible. The other thing that I'd just like to mention
15 and maybe, I don't want to take much more time. But at
16 the present, the geological thing is quite vague. It's
17 at least thirty five (35) or forty (40) years away while
18 these silos and the storage and movement of this nuclear
19 waste from the spent fuel bay where it is now at Lepreau
20 in New Brunswick, is a very real threat to the people of
21 New Brunswick and it has to be addressed.

22 THE CHAIRMAN: I hear clearly what you're
23 saying. Dr. Wilson wishes to ask a question.

24 DR. LOIS WILSON: First of all, I want to
25 say how pleased I am that you've had consultation with



1 ten (10) community groups in the province. You're the
2 second (2ND) such group that has done this and that means
3 I think that you are in touch with a wide cross section
4 of community. On of the things that the panel will be
5 looking at is the criteria and methodology for selecting
6 site and I wanted to know, do you have some comments
7 about what criteria would have to go into a community
8 approval process?

9 MS. JULIE GALBRAITH: Well, we would like
10 the community to be involved, a potential host community
11 if we can actually call it a host, to have a nuclear
12 waste site. But we would like the community to be
13 involved in all levels and that would mean that if the
14 community was, a majority of the community was opposed,
15 then that site would not be seen to be a good site
16 obviously.

17 DR. LOIS WILSON: But how would you
18 determine that?

19 MS. JULIE GALBRAITH: Oh there's all kinds
20 of ways to determine. You can do a poll, you can come in
21 and do meetings. I guess it's just ...

22 MR. DAVID THOMPSON: Well we actually have
23 made a recommendation in our brief and I think, I think
24 the thing that we have to say at this point in time is
25 that it's imperative that any future site selection



1 process include the maximum degree of public
2 participation.

3 And we mean participation that is free
4 participation, not manipulation of the community by AECL
5 or a nuclear proponent such as happened in the Lepreau
6 area in New Brunswick here but that they stay out of the
7 community and don't meddle with it. That the community
8 can participate in determining their own destiny.

9 And also...

10 MS. JULIE GALBRAITH: See, that doesn't
11 happen if you get a group like Atomic Energy of Canada
12 Limited in with their glossy slides shows and telling
13 people that they are going to get jobs, jobs, jobs,
14 because we have a real problem with job blackmail in New
15 Brunswick. They're not getting the whole side of what
16 this is actually going to mean to the community, that we
17 can no longer be short sighted and think of a ten (10)
18 year job.

19 We have to think about what we're doing to
20 future generations, ten thousand (10 000) years down the
21 road.

22 MR. DAVID THOMPSON: I think that par-
23 ticularly too, we have to identify in detail how the site
24 selection for a geological storage facility for nuclear
25 fuel waste would be carried out and also, it should be



1 described in any EIS, how the public would be involved in
2 the selection and decision making process. That should
3 be clearly outlined in the statement.

4 THE CHAIRMAN: Mr. Van Vliet?

5 MR. PIETER VAN VLIET: I'm not sure to whom
6 I might ask for this, Mrs. Galbraith or Mr. Thompson.
7 But in your presentation, you have addressed many issues.
8 Which of those issues in your opinion, is the most
9 crucial?

10 MR. DAVID THOMPSON: Well to New Brunswick,
11 the most crucial is the Environmental Impact Assessment
12 and Review of those spent fuel waste silos at Lepreau and
13 a moratorium on the movement of any fuel from where it
14 sits now in the spent fuel bay until that review is
15 completed. That's the most important issue to New
16 Brunswick right now. That's where the threat lies.

17 MS. JULIE GALBRAITH: And I would have to
18 say that from across Canada, the perspective is that of
19 course the terms of reference that it's not fair to ask
20 people to separate the production of nuclear waste from
21 how that nuclear waste is going to be handled.

22 Obviously the two (2), from mining down are
23 so inter-related that you can't just talk about the waste
24 as if everything else is given and as if everything else
25 is O.K. because obviously, with the thousand of miles



1 that are contaminated from uranium mining already, it
2 isn't all O.K.

3 MR. DAVID THOMPSON: I'd also like to add
4 that the Chairman in his opening remarks said that there
5 are indications that there might be another kind of
6 review. Well, we have no indication what that review
7 will be like or even if it will occur as we outline in
8 our brief. And even if it does occur, it might rule out
9 discussion of the issues that we care about. And if it
10 occurs or if it is planned by the Government, then it
11 should occur before what you are doing right now because
12 we should, we should know whether a decision is going to
13 be made to produce more nuclear waste in Canada before we
14 start discussing what to do with it.

15 So if the government is of the intention to
16 carry out that kind of review then, then it should be
17 done before this review. This review perhaps should go
18 in some kind of suspension until that review is done.

19 And also, in respect to that review,
20 environmental groups through the Canadian environmental
21 network must be involved in setting the terms of
22 reference for that review. We have to set the
23 conditions, not someone who is bias towards the industry.

24 THE CHAIRMAN: Any other questions from
25 panel members? If not, I thank you very much indeed and



1 as I can assure you, we'll be studying the brief very
2 carefully because you've got a lot there.

3 MR. DAVID THOMPSON: Well thank you. And I
4 might mention that we have a few more copies of our brief
5 and if there's any media people who haven't got a copy
6 then we'd be glad to give them one. Thank you.

7 THE CHAIRMAN: Thank you very much.
8 ---Panel withdraws.

9 THE CHAIRMAN: I'm wondering... may I
10 enquiry whether Mr. Powning has arrived, if so, I'll ask
11 him to come forward but if not, we'll hold a spot for him
12 certainly, until later on this evening. If he's not
13 here, I would call on the next person that I have on my
14 list, which is Mr. Jeff Galbraith.

15 PRESENTATION BY JEFF GALBRAITH:

16 Good evening, my name is Jeff Galbraith and
17 I'm here as an independent citizen and also if time
18 permits, to present a couple of briefs for people that
19 couldn't be here this evening.

20 First I'd just like to make a short tongue
21 and cheek presentation on my own behalf and then I'll
22 read the briefs that were given to me.

23 Over the past few years, many St-John
24 service stations have been digging up their steel
25 gasoline storage tanks and replacing them with fibreglass



1 tanks. A few other gas stations have dug up their old
2 tanks, torn down their walls, ripped up their foundations
3 and closed for good. All this tank replacement and remo-
4 val seems to have happened since several uptown
5 explosions were traced to gasoline leaks which flooded
6 the St-John sewers with volatile fumes on that morning
7 several years ago.

8 The service station to which the leak was
9 traced was shut down. Faulty tanks were dug up and the
10 site was converted to a parking lot. This summer,
11 another St-John service station sprung a leak. The area
12 around the gas station was road blocked. The stores and
13 residences of the area were evacuated. And a squadron of
14 fire trucks were brought in. This time, thank God, there
15 were no explosions. This service station has recently
16 been decommissioned as well.

17 It would seem that the old underground steel
18 tank method of storing gasoline was flawed. No doubt,
19 this storage method was thought to be safe at the time of
20 its conception. But over time, weaknesses were exposed.

21 One must wonder what weaknesses time would
22 expose and will expose in the proposed deep geological
23 storage of nuclear fuel waste concept. Will this concept
24 spring a leak?

25 If it does spring a leak, will we be able to



1 access and upgrade the container as with the gasoline
2 tank or as was the case with some gas leaks, will the
3 damage be so great and far reaching, that we will be
4 obliged to dig up and scrap the container.

5 Only time will tell. But maybe we should
6 listen to what time has already told us. Burying our
7 problems will not solve them and sometimes it makes them
8 worse.

9 PRESENTATION OF MS. BONNIE POND (by Jeff Galbraith):

10 O.K. this is a brief that was given to me by
11 Miss Bonnie Pond, she's a member of ... Eco-Chaleur and
12 director of the Conservation Council of New Brunswick.

13 I've been involved in the environment
14 movement for over ten (10) years and quite honestly, I'm
15 tired of dancing at the end of AECL's string. I'm tired
16 of all the volunteer hours that go into organizing an
17 evening like this evening. To go into public education
18 through letters to the editor, lobbying journalists,
19 politicians, neighbours etc.

20 I'm tired of doing that when the Canadian
21 Nuclear Association is able to allocate, if I remember
22 the press releases correctly, something like twenty
23 million (20M) over three (3) years for so-called public
24 relations.

25 I'm tired of our volunteer hours when AECL,



1 Atomic Energy of Canada Limited, a Federal Crown
2 corporation which receives somewhere in the range of two
3 hundred (200M) million a year from the federal
4 Government, can use this money, our tax dollars, to
5 investigate any nuclear groups and smugly report, and
6 this is a quotation. Most groups face funding difficul-
7 ties. That's a quote from an international memorandum
8 from AECL dated January 12th, 1988.

9 It starts "Please find attached the
10 beginning of our data based on various anti-nuclear
11 groups."

12 The only part of this whole thing, is the
13 first observation which says there are about one hundred
14 (100) anti-nuclear groups in Canada and goes on to note
15 that they are reporting on only the more active and
16 higher profile groups. I'm very proud as a New
17 Brunswicker to say that three (3) of the twenty (20)
18 groups listed are based in New Brunswick.

19 I said dancing at the end of AECL's string.
20 I wasn't exaggerating. Here's what I mean. When the
21 Environmental Impact Assessment Process was undertaken
22 for Point Lepreau back in 1975, long term radioactive
23 waste management or disposal was explicitly excluded from
24 the study on the claim that within ten (10) years, waste
25 from Lepreau would be transferred to the Canadian



1 Shield.

2 So what happened? It's now fifteen (15)
3 years later, Point Lepreau has used up all the temporary
4 storage facilities on site.. According to NB Power, they
5 need a solution by mid nineteen ninety one (1991), next
6 year.

7 So the Atomic Energy Control Board, the so-
8 called Nuclear Regulatory Board in Canada, has given its
9 approval for the storage of these spent nuclear rods in
10 concrete canisters or silos near Point Lepreau in New
11 Brunswick.

12 And all this has been done without an
13 Environmental Impact Assessment being done. So hardly
14 before the province was aware of what had happened, we
15 had a quasi-permanent storage depot for high level
16 nuclear waste in Charlotte county.

17 The modus operandi of the nuclear industry
18 is simple. You categorize what people can say and when
19 they can say it, so that the large picture, the issue of
20 nuclear power per say is never discussed.

21 And they're doing it again. According to
22 the terms of reference for the nuclear fuel waste
23 management and disposal concept, Environmental Assessment
24 Panel, here's what we cannot talk about as spelled out on
25 page 4.



1 We can't talk about the energy policies of
2 Canada and the provinces. That means the need for
3 nuclear power and the possible alternatives like
4 conservation or co-generation cannot be discussed. We
5 can't talk about the role of nuclear energy within these
6 policies, including the construction, operation and
7 safety of new or existing nuclear power plants.

8 So don't mention the cost of a nuclear or we
9 may find out that when Marguerite Thatcher privatized the
10 energy industry in England, she had to take out all the
11 nuclear power plants and keep those as state owned.
12 No smart businessmen would take them. Here's an
13 editorial from The Observer, dated November 12th, 1989.

14 The Observer was established in 1971 by the
15 way and is hardly noted as being an environmental paper.
16 It reads: "Privatization has proved that nuclear power
17 is hopelessly un-economic and saddled with decommission-
18 ing cost that no private company could accept without
19 huge guarantees from the government."

20 And of course we can't talk about safety
21 because both Three Miles Island and Chernobyl have
22 occurred since the original Environmental Impact assess-
23 ment was done for Point Lepreau in the mid seventies.

24 And there might even be questions on the
25 series of events that led up to an employee at Point



1 Lepreau's spiking the water cooler with radioactive
2 active water.

3 Another thing we can't talk about is fuel
4 reprocessing as an energy policy, or the military
5 applications of nuclear technology because we're all
6 terrified as it is with Saddam Hussein having chemical
7 weapons. But he has also nuclear plants and according to
8 a CBC documentary last week, secret nuclear facilities in
9 northern Irak.

10 So what can we talk about? We can give our
11 views on the concept of geological disposal of nuclear
12 fuel waste. Of course, what geological location is being
13 considered is still hush, hush.

14 Well, I'm sorry, but I have no views on a
15 concept. But before I leave, I want to make one comment
16 and one prediction.

17 My comment is that each member of Eco-
18 Chaleur took petitions to get 25 signatures each against
19 nuclear power waste being stored in silos in New
20 Brunswick, and against a second reactor at Point Lepreau.
21 And I can tell you it is pathetically easy to get people
22 to sign petitions against nuclear power. Whether those
23 in power take any heed is another matter. According to
24 the recent CBC Globe and Mail poll, in this autumn of
25 discontent, very few elected officials appear to be



1 listening to the people.

2 My prediction is that the Environmental
3 Assessment Panel will conclude that the idea of
4 radioactive waste being safely stored and not affecting
5 us or our environment for thousands of years is totally
6 absurd. Further, I predict that no politician will
7 endorse the idea of a nuclear dump in his or her
8 constituency. Consequently, we will get absolutely no
9 action on a permanent facility for nuclear waste. And
10 the concrete silos in Charlotte county will become a
11 permanent monument to AECL and its hangers on and make up
12 the wealthy Canadian Nuclear Association.

13 In other words, New Brunswick already has
14 its permanent storage concept and it's the only one we
15 are likely to get.

16 As "Forringham" would say: "You heard it
17 here first."

18 O.K. I have here another brief given to me
19 by the Miramichi Environmental Society, it's quite short.

20 PRESENTATION BY THE MIRAMICHI ENVIRONMENTAL SOCIETY (by
21 Jeff Galbraith):

22 I would like to begin my presentation this
23 evening with a quote from the terms of reference for the
24 nuclear fuel waste management and disposal concept,
25 environmental assessment panel, statement is as follows:



1 "The energy policies of Canada, the
2 provinces, the role of nuclear energy within
3 these policies including the construction,
4 operation and safety of new or existing
5 nuclear power plants, fuel reprocessing as
6 an energy policy and military applications
7 of nuclear technology are issues that are
8 outside the panel's mandate and should not
9 be addressed during the review."

10 It strikes me as absolutely absurd that the above issues
11 will not be addressed as part of the review process since
12 the amount of nuclear waste to be managed is directly
13 dependent upon how many new facilities will be
14 constructed, which is in turn, determined by the energy
15 policies of Canada and the provinces, I do not see how
16 the two (2) issues can be separated out.

17 It's equivalent to preparing for a solid
18 waste disposal site without considering recycling or
19 waste reduction programs. However, the far reaching
20 consequences in terms of the impact upon present and
21 future generations are much, much more serious when
22 dealing with the issue of nuclear waste management.
23 We're dealing with a substance here that is so
24 radioactive that it can never be handled by human hands.
25 It must be handled by robotic equipment. Spent nuclear



1 fuel remains unapproachable for several centuries and
2 extremely toxic for hundred of thousands of years.

3 To put toxicity into perspective, scientists
4 calculate how much water would be needed to dilute a
5 specific quantity of poison, to the maximum level of
6 pollution legally allowed for drinking water.

7 By the year 2000, Canada's nuclear reactors will have
8 produced enough radioactive poison to contaminate all the
9 water in lakes and rivers twice over.

10 Obviously, as with any waste management
11 program, the objective should be reduction at source
12 which means taking a serious look at energy policy as it
13 stands in Canada today. The best, safest and most
14 reliable way to dispose of future nuclear waste is simply
15 not to create them in the first (1st) place.

16 How can we not consider energy efficiency
17 when discussing such a serious issue. A commitment to
18 implementing energy efficiency that is currently possible
19 would eliminate the need for additional generating
20 capacity in the future. In fact, if Canada decreased its
21 electricity intensity to the level currently attained in
22 Denmark, we could shut down every one of our coal fire
23 and nuclearly powered electricity generating stations and
24 still meet all of our electricity needs with less than
25 half our existing Hydro-Electric power.



1 It is important to bear in mind that
2 Canadians use more energy per person than do people in
3 any other country.

4 A Canadian uses more than twice (2) as much
5 electricity as a person in West Germany and three (3)
6 times as much as a person in Britain or Japan. Canada
7 also has the most electricity intensive economy in the
8 industrialized world. Consuming 40% more electricity per
9 dollar of gross domestic product than the United States
10 and twice as much as any other leading industrialized na-
11 tion.

12 Numerous studies have demonstrated the
13 tremendous potential of energy efficiency in Canada. One
14 study by Friends of the Earth concluded that Canada could
15 consume less total energy in the 21st century than it
16 does today. Even more startling is the research of
17 utility consultant E. Logans who found that by
18 implementing efficiency measures averaging less than 1%
19 kilowatt/hour, the United States could reduced its
20 electricity consumption by more than 75%.

21 There's every reason to believe that less
22 efficient Canada has even greater potential for energy
23 savings. There also exists enormous potential for energy
24 supply in the area of independent or non-utility power
25 generation. Independent sources of power are like



1 electricity consumers, generally small scale and
2 decentralized.

3 Many use renewable energy from small Hydro-
4 Electric plants and waste "bio mass fuels". In some
5 locations wind, wave, direct solar or geo-thermo-energy
6 can be taped cost effectively. There's also enormous
7 potential for energy production from coal generation, the
8 simultaneous high efficient production of electrical
9 power and heat.

10 Going back to the terms of reference, the
11 consideration of only the abstract concept of deep
12 geological disposal with no reference to any specific
13 site limits meaningful discussions of scientific
14 evidence. Participants may be forced to assume that some
15 day a site will be found with no risk of earthquakes,
16 volcanoes or underground water flow.

17 Remember that no high level nuclear waste
18 have been permanently buried anywhere in the world.
19 Despite decades of research, high level waste disposal
20 remains dominated by technical uncertainties. Perhaps a
21 future scientific breakthrough will allow us to destroy
22 waste or render them harmless. Perhaps not.

23 Given these uncertainties, it makes sense
24 for the time being to store existing waste on the surface
25 of the earth rather than to take a chance of geological



1 disposal using untried technology which we'll have to
2 endure for theological time periods. It makes even more
3 sense to phase out nuclear power. Let us join the ranks
4 of Austria, Italy, the Philippines, Sweden, Yugoslavia,
5 Belgium, the Netherlands and Spain who have reversed
6 their positions on nuclear policy, not to mention
7 Australia, Denmark, New Zealand, Greece, Luxembourg,
8 Norway and Iceland who have always been non-nuclear.

9 THE CHAIRMAN: It's a little past your
10 fifteen (15) minutes Mr. Galbraith, I'm just concerned
11 about the other people who wish to speak to us. Those
12 can of course be filed with us you know. You could just
13 indicate where the other ... perhaps you could indicate
14 for the record all the other people that have asked you
15 to bring their ...

16 MR. JEFF GALBRAITH: Yes...

17 THE CHAIRMAN: I realize you're speaking on
18 behalf of several...

19 MR. JEFF GALBRAITH: I just have one more
20 brief here presented to me by ... I can hardly read
21 this...

22 SPEAKERS: Let's hear it.

23
24 MR. JEFF GALBRAITH: I think it's Patricia
25 Gordon... It's just one more brief...



1 THE CHAIRMAN: I couldn't hear the name
2 because there's too much applause.

3 MR. JEFF GALBRAITH: It's Patricia Gordon,
4 she's also with Eco-Chaleur.

5 THE CHAIRMAN: Well, there are other people
6 who wish to speak. Perhaps you could hold that one and
7 do it a little bit later towards the end and I'll keep
8 you in mind so that could be presented then. Would that
9 be possible for you?

10 MR. JEFF GALBRAITH: Certainly, yes.

11 THE CHAIRMAN: Good thank you, I just wanted
12 to make sure that all the others who have come and have
13 inscribed get their chance to speak but I'll note that
14 you'd like to have a second round so you can read us that
15 additional. Thank you very much.

16 ---Mr. Galbraith withdraws.

17 THE CHAIRMAN: Could I ask if Miss Janet
18 Dingwell is now... is here and would be ready to come
19 forward to present her views?

20 PRESENTATION BY JANET DINGWELL:

21 Hello, welcome to St-John, my name is Janet
22 Dingwell and my presentation is that of a concerned
23 citizen.

24 First, may I thank the panel for coming to
25 St-John directly and forwarding my concerns to AECL.



1 I'm not going to deal with specific
2 accidents nor dangerous incidents because AECL has a
3 veritable army designed to answer and find ways to avoid
4 these matters. Rather, I have analyzed and reviewed the
5 terms of reference for the nuclear fuel waste management
6 and disposal concept. This presentation will stay within
7 the extreme limits of this document entirely for it is
8 the terms of reference themselves that I wish to deal
9 with.

10 First, I would like AECL to be reminded for
11 whom they work. The Government of Canada works for the
12 people of Canada as dictated by the democratic process.

13 The AECL works for the government,
14 therefore, the AECL works for the people of Canada. This
15 reasoning is infallible.

16 This means that the AECL must ultimately
17 answer to the Canadian people regardless of whether of
18 not they wish to. Inevitably, the Canadian people will
19 start to demand more and more answers, more and more
20 information and AECL is accountable for this. If they do
21 not do their job fairly and with a long term view to the
22 hazards of nuclear waste, they will have to be removed on
23 the basis of ineffectiveness.

24 The AECL should not be lulled into a sense
25 of false security. We the Canadian public are in the



1 final say, their employers. Therefore, we the Canadian
2 public, will find a way to dissolve the AECL if it proves
3 to be incompetent and unethical. They do not work in a
4 vacuum, they are wholly responsible to the Canadian
5 people.

6 We're informed by the terms of reference
7 that the governments of Canada and Ontario alone are
8 responsible for the evaluation of the disposal concept.

9 This portrays a blatant disregard for the
10 concerns of the other provinces. How this can be
11 justified is beyond me. Nuclear power from the initial
12 mining to the waste produced has many grave consequences
13 for all Canadians. Having only these two governments
14 involved in this process undermines the credibility,
15 reliability and overall pertinence of the concept for the
16 Canadian public.

17 The terms of reference tells us there's a
18 scientific review group of distinguished, independent
19 experts will evaluate scientific and technical matters.
20 What assurances does the public have of both the
21 independence and expertise of this group. Can the public
22 be guaranteed that the deck will not be stacked, so to
23 speak. It is absolutely necessary that the AECL provide
24 these guarantees immediately with utter clarity.
25 Otherwise, there's a good chance that the evaluation will



1 be biased and inaccurate. The members of this group
2 should have no connection whatsoever with AECL and if
3 necessary, Canadians should go outside of Canada to
4 insure independence.

5 Within the terms of reference, the AECL
6 speaks of permanent disposal. This is an inapt attempt
7 on the part of the nuclear industry to give false
8 assurance to the Canadian public. Do they really believe
9 that we are so naive and ignorant that we are not aware
10 of the fact that there is no such thing as permanent
11 disposal of nuclear waste. I resent the fact that AECL
12 is trying to deliberately mislead me. Surely permanent
13 disposal would mean either perfect isolation or total
14 neutralization. To imply otherwise is deliberately
15 fallacious. The best we can do is store the waste and
16 there's not even any assurance of safe storage.
17 Especially where we have not had an Environmental Impact
18 and assessment on the silos at Point Lepreau. I don't
19 feel assured whatsoever that, that is a safe form of
20 storage and I won't until that assessment is done.

21 A moratorium should be placed on further
22 production of nuclear waste and the funds should go
23 directly to research on how to permanently dispose of the
24 waste. To do otherwise is foolhardy. I hope that the
25 AECL also realizes and admits to the fact that if the



1 waste is stored underground, it would prove far more
2 costly to monitor it and to retrieve it if necessary then
3 it would for any other form of storage.

4 AECL says we must examine the burden that
5 nuclear waste places on future generations. Everybody
6 says that. What can the goals of this examination be?
7 The fact of the matter is that future generations will
8 have to deal with this burden. It cannot be avoided. We
9 simply do not have the knowledge nor the technology to
10 allow for any other alternatives. Burying the waste is
11 perhaps the most dangerous alternative because out of
12 sight, out of mind.

13 In fact, I'd like to say that I heard an
14 interview on CBC this morning where a member of AECL was
15 talking about the geological storage concept and he said
16 that he feels it would take a lot of pressure off
17 Canadians if something permanent was found. Again, I'd
18 like to stress that is by no means permanent.

19 Hazardous nuclear waste should never be out
20 of mind. The greatest area of contention for myself and
21 many others is the following paragraph. We've heard it
22 many times but I don't hear we can hear it too much
23 tonight. Quote:

24 "The energy policies of Canada and the
25 provinces, the role of nuclear energy within



1 these policies including the construction,
2 operation and safety of new or existing
3 nuclear power plants, fuel reprocessing as
4 an energy policy and military applications
5 of nuclear technologies are issues that are
6 outside the panel's mandate and should not
7 be addressed during the review."

8 Well, we've been told haven't we.

9 First of all, we have to ask where these
10 primary issues are going to be addressed and when. When
11 the New Brunswick public ask for an Environmental
12 Assessment and Review of the dry canister storage, the
13 AECB would not grant this although it was demanded.

14 Perhaps the AECB should also be reminded for
15 whom they work. And I'd like to say as well, I also gave
16 a presentation at that meeting and after I was through my
17 entire presentation, I was told that many of the points
18 I made were no longer relevant because the issues had
19 been dealt with. I was simply not mailed the information
20 although it had been available for a month and I was on
21 the mailing list. And I do see that as merely one
22 example of slight incompetence on the account ... on the
23 part of the AECB.

24 I must now talk about why these various
25 issues are not to be addressed. Is the AECL incapable of



1 answering and dealing with these concerns? This may very
2 well be the case. Regardless, it is outrageous to state
3 that these very important issues are not to be addressed
4 during this review. It is impudent and insulting to
5 Canadians.

6 Another possible reason for AECL not wishing
7 to deal with these issues is because they would open a
8 can of worms that would detail the consequences of
9 nuclear energy and its waste products.

10 Another reason could be that the AECL simply
11 does not wish to deal with these issues and believe they
12 have no obligation to the Canadian public to do so. May
13 I again remind the AECL who they work for, the Canadian
14 public.

15 To attempt to so limit the questions and
16 concerns of Canadians is another sign of blatant
17 disregard on the part of AECL for the job they're
18 supposed to be doing.

19 The panel's final report will address
20 whether or not AECL's concept for geological storage, not
21 disposal, is safe and acceptable or should be... should
22 it be modified.

23 What if the concept is seen as unsafe,
24 unacceptable and unable to be modified? Will nuclear
25 power be phased out, waste stored above ground and other



1 energy alternatives explored? Or will the AECL continue
2 to beat a dead horse?

3 To conclude, I would like to quote one of
4 the most eminent and highly respected scientist of our
5 time, David Suzuki. He says:

6 "I believe if we are to learn anything from
7 history, it is that we cannot go on
8 indefinitely inventing and applying new
9 technologies as if we will always be able to
10 handle all the problems in the future.
11 History tells us that we never been able to
12 pull back from a technology, once it was in
13 place and found to provide benefits. I
14 know of no instance where we've pulled back.
15 I believe we have come to a point where we
16 have to rule out consciously and
17 deliberately areas for further development
18 out of our ignorance and the realization
19 that we cannot afford to find out the hard
20 way."

21 Thank you very much.

22 THE CHAIRMAN: Ms. Dingwell, would you wait
23 a moment please, in case there are any questions.
24 There's one comment which you've made earlier in your
25 presentation which has me a little baffled.



1 You have asked and understandably, that
2 you'd like to have assurances that the... of the
3 independence and the quality of a scientific review group
4 and then you go on to say: "it is absolutely to be
5 necessary that the AECL provide these guarantees."

6 Can I just point out, the AECL has not
7 appointed the scientific review group, this panel has
8 appointed it after a great deal of attention paid to
9 getting the best we can on that. So it isn't... that's
10 not an AECL responsibility, that is ours.

11 MS. JANET DINGWELL: O.K. to reply to that,
12 like David Thompson, I'm not very good with names
13 whatsoever, but upon looking at a recent flier that
14 listed the names of the members of those panels, I do
15 believe that several or at least one (1), was an ex-
16 employee of the AECL and had been involved with the
17 nuclear industry in Canada for several years. For me,
18 that does not give me any significant level of
19 independence whatsoever.

20 THE CHAIRMAN: As I said to Mr. Thompson, if
21 he has some evidence that causes him some concern, we'll
22 be happy to look at it of course. Any questions from
23 members of the panel? Dr. Lapierre?

24 DR. LOUIS LAPIERRE: One question regarding
25 storage. Regardless of what happens in the future, we do



1 have waste to take care of. You indicated that it should
2 maybe be kept on sight and possibly in view.

3 Would you consider one site where it would
4 be kept even if it was not an individual site where it
5 was generated? Is that your...

6 MS. JANET DINGWELL: No, I wouldn't consider
7 that a viable alternative whatsoever. I believe that
8 whoever produces the waste and benefits economically from
9 these power plants should be totally responsible for
10 keeping waste. I don't believe in one chosen site such
11 as the Canadian shield nor do I believe in exporting it
12 to third world countries or dumping it in the ocean or in
13 outer space.

14 I think the particular community that has
15 the power plant, if they didn't make enough effort or if
16 their efforts weren't received, that's really too bad,
17 but they should be fully responsible for keeping that
18 waste in the community.

19 DR. LOUIS LAPIERRE: Thank you.

20 THE CHAIRMAN: Mr. Van Vliet?

21 MR. PIETER VAN VLIET: Yes, if the case
22 should occur that decision is made to store in a more
23 permanent way the fuel, the spent fuel on site, either
24 above ground or underground or whatever, do you believe
25 or do you feel that, that process should still fall



1 within the Environmental Assessment Review or should it
2 be done without any further review merely on the fact
3 that it's there and should be kept there?

4 MS. JANET DINGWELL: I think a Review is
5 absolutely necessary regardless even if just to get us
6 into the habit of recognizing the enormity of dangerous
7 wastes such as nuclear wastes. So we can familiarize
8 with the public and at least give them a sense of honesty
9 within these various organizations which New Brunswick
10 feels there is... that it's useless, you know. I had
11 more people say to me "Why are you bothering you know,
12 you spent all that time on that other one and nobody
13 listened. Everybody wanted a Review and Assessment and
14 they didn't give one."

15 So just even to enhance the credibility of
16 the various areas of the nuclear industry, I think
17 definitely and for environmental safety, most
18 importantly, I think it should still be done.

19 THE CHAIRMAN: Thank you very much indeed Ms.
20 Dingwell.

21 MS. JANET DINGWELL: You're welcome.
22 ---Ms. Dingwell withdraws.

23 THE CHAIRMAN: I had next on my list, the
24 main Nuclear Referendum Committee, Robert Muldaver, but
25 I think I was told that he was not going to be able to



1 make it this evening. That was by Jeff Galbraith, right.

2 Perhaps you will save that then for your
3 second ground, we can come back to it and you could say
4 something on their behalf later on, thank you.

5 The next group that I have listed is the
6 Sussex Project Ploughshares, Mary McKay Keith. The
7 person whom had hoped to present the report on behalf of
8 Sussex Project Ploughshares is unable to be here this
9 evening and it will be read by ... I didn't catch you
10 name, I'm sorry? Dr. Tippet, good thank you very much.

11 PRESENTATION BY DR. TIPPETT:

12 Sussex Project Ploughshares was very pleased
13 to learn of this Environmental Assessment of high level
14 nuclear waste storage. Nuclear waste is the plague of
15 our time. We have created a burden that we do not know
16 how to carry. A burden that must now pass from
17 generation to generation for all time. In approaching
18 this problem, we must always remember our responsibility
19 toward future human civilizations and proceed only with
20 the utmost caution and humility. The terms of reference
21 for this assessment reveal a total lack of commitment to
22 a real solution to this dilemma.

23 They purposely exclude the issues that are
24 of supreme importance in this debate. What remains are
25 only those issues that the nuclear industry is willing to



1 address. The heart and sole of the dilemma have been
2 removed. This is a familiar situation for us all. The
3 nuclear industry is continuously flooded us with their
4 propaganda and misinformation.

5 Nuclear waste however is not something to be
6 brashly addressed with slick heads and expensive PR cover
7 ups. It is now up to the industry to clearly demonstrate
8 what this... that this process is not another sham. To
9 demonstrate that they are serious about finding a
10 solution. The only way to accomplish this is for the
11 industry to call for a moratorium on the production of
12 nuclear waste until there is a safe and acceptable
13 solution. The only way for this panel to render this
14 assessment process credible is to insist that the
15 industry heeds such a moratorium.

16 Sussex Project Ploughshares is a peace and
17 development group. The "raison d'être" of the nuclear
18 energy industry is nuclear weapons. One of the most
19 terrifying results of nuclear fusion is the bi-products,
20 the weapons grade materials. It is incomprehensible that
21 the military implications of nuclear waste are excluded
22 from this Assessment.

23 The people of Canada envision a nuclear
24 weapons free world. Each waste disposal option must be
25 carefully examined and the potential accessibility for



1 military use fully understood. Ways to reduce the
2 potential for weapons use must also be researched and
3 debated. We cannot afford to leave this issues
4 unresolved until some future date when crisis may bring
5 us to the brink of military use. We must take full
6 responsibility for the potential military use of nuclear
7 waste during this review.

8 With any waste management strategy, the
9 first question must be: Is it necessary to produce this
10 waste? Until we have fully answered this question, we do
11 not have the necessary framework for completing the
12 remainder of the assessment.

13 If we decide not to produce any more waste,
14 then the problem is a finite one at least in terms of
15 quantity if not in terms of time. However, if we
16 continue to produce nuclear waste, then we are facing a
17 much more complex situation.

18 In order to come to terms with this first
19 question, we must address the energy policies of Canada
20 and the provinces and the role of nuclear energy within
21 these policies. The Environmental Impact of all energy
22 options throughout their entire life cycle must be
23 examined and compared. Only within this complete
24 framework will we be able to assess the necessity and
25 acceptability to society of the risks associated with



1 nuclear fusion and nuclear waste. The credibility of the
2 Environmental Impact Assessment of a nuclear waste
3 disposal concept can then be established.

4 We also think that the canister storage of
5 nuclear waste at Point Lepreau must be given a complete
6 environmental assessment. We call on this panel to
7 include this in their mandate.

8 Members of Sussex Project Ploughshares
9 attended the AECB hearing in St-John this summer. There
10 we heard a number of rational and eloquent arguments
11 outlining the need for such an assessment. Editorials
12 and letters in newspaper throughout the province also
13 called for such an assessment. We were appalled by the
14 AECB decision to proceed without the benefit of an
15 assessment. It is hard to believe that in this day and
16 age, authorities can turn such deaf ear on the people of
17 a province. As a group that works within the political
18 process, it is more than disheartening to find ourselves
19 continuously confronting the same deaf ear. Our question
20 for the panel is are you listening?.

21 THE CHAIRMAN: Thank you Dr. Tippett, yes we
22 are, we certainly are. Any questions which members of
23 the panel wish to put to Dr. Tippett who is presenting us
24 on behalf of someone else. You'll be back in your own
25 behalf I know.



1 DR. TIPPETT: She requested that the
2 questions for her should be written down and sent to the
3 Sussex Project Ploughshares and they'll respond in
4 writing.

5 THE CHAIRMAN: O.K. Thank you very much.
6 ---Dr. Tippett withdraws.

7 THE CHAIRMAN: The next on my list is the
8 organization Alternative Means Power, Robert Brown has
9 asked to present that. Mr. Brown.

10 PRESENTATION BY ROBERT BROWN:

11 I think Mr. Chairman, it's obvious that
12 Canada has a major problem of her own making. And you
13 know, after twenty-five (25) or thirty (30) years, the
14 lifespan of a conventional power station, it can be demo-
15 lished and flattened and turned into a playground for
16 children.

17 After twenty-five (25) or thirty (30) years
18 of a nuclear power station, you won't be turning it into
19 a children's playground. The results are a lethal toxic
20 radioactive on to death and an economic headache for
21 generations upon generations. I'm not anti-nuclear par,
22 I believe that there's a place for nuclear power and re-
23 search. But I am anti-nuclear increase when there is so
24 much other power sources available. The centre theme of
25 this debate is that man has loss control over nuclear



1 energy waste fuel and finds it hard to admit it. If man
2 cannot continue with complete safety in a lifetime, he
3 would be better reducing to a controllable scale.

4 I applaud the democratic manner these fatal
5 issues are discussed here and deplore anyone who employs
6 somatics to distort the truth. I trust this exercise of
7 democracy is not just a rubber stamp for a ruddy program
8 government policy.

9 The feelings of the world's nations over the
10 nervous, unstable, insecure nuclear industry waste
11 problems are well documented. Sweden has terminated her
12 nuclear power immediately. The Netherlands people are
13 very uncomfortable and probably will terminate theirs
14 shortly. United Kingdom has already got a moratorium
15 policy and with a change of government, could scrap
16 theirs. Nuclear power and nuclear waste is a major
17 problem at your doorstep, people of St-John and Canada.

18 Expert opinion is so well at the vested
19 interest, it makes nuclear waste and fallout an
20 environmental problem and pollution appears good for you
21 and your pocket. I have no vested interest, only a
22 damaged lung and a mission to warn and advise against a
23 self-destructive policy that will affect our children and
24 children's children for generations.

25 I have worked and lived alongside the group



1 and development of nuclear power and weaponry. Calder
2 Hall, Seaskill, Selfhill, Hankley Point, Transvaliet,
3 Hashon, the UK nuclear stations, just to mention a few.

4 I've seen beautiful beaches destroyed. I
5 have seen scenic hills and mountains become no man's
6 land. I have seen sheep, lawns, cattle and vegetation
7 made useless and genetically destroyed and dead. And
8 I've seen Chernobyl.

9 What are the alternatives? The answer is
10 simple and clean. Alternatives Means Power, AMP. Hail
11 Hydro, solar, wind stations. And research into the
12 fundamentals of electricity storage. Nature's laws
13 aren't changing $E = MC^2$ in all ages and claims. Light
14 causes produce light effects. The very immutability of
15 nature's laws .legs, Layers won't chief virtue and that
16 is that the energy power is to be servants of God and
17 man, not the masters. To be safe, reliable, faithful,
18 not dangerous. Little by little, man has been mastering
19 the laws of nature and converting them into being
20 obedient servants and smooth sweetness with energies that
21 are controllable.

22 Nuclear research has a place, nuclear power
23 is dangerous. It is safe, it is not reliable, it is not
24 cheap. New Brunswick, Canada has the greatest power
25 potential in the world. The Fundy tides. And I wonder



1 what the Dutch, German, Swedes, Japanese or Israeli
2 engineers would do with the same potential. Canada is
3 at the threshold of advanced tide station technology and
4 must realize the power potential and design a
5 construction in the Bay of Fundy of a 3,000 megawatt
6 base, not tomorrow, but start today.

7 There's a world market for non-nuclear, non
8 fossil power stations. Canada must lead the world on
9 environmental issues and make full use of the world
10 environment market. St-John's should be a leading in-
11 dustrial manufacturing centre for such a market. Given
12 the growth and employment ratio well above Point Lepreau
13 2 project expectations.

14 I finish with a quote from the Environmental
15 Assessment Review Panel's dialogue on nuclear fuel waste
16 management magazine. The quote is:

17 "The continued safety and wellbeing of
18 Canadian must be paramount. Canadians, thus
19 can only be honoured by abandoning nuclear
20 power for tidal power, an alternative means
21 power."

22 I thank you sincerely.

23 THE CHAIRMAN: Thank you Mr. Brown, are
24 there any questions which panel members would wish to
25 put? Mr. Van Vliet?



1 MR. PIETER VAN VLIET: Yes, Mr. Brown, you
2 indicated that in terms of alternatives, much more
3 research needs to be done. Obviously you've given that
4 some thought.

5 Could you identify for the panel as to how
6 much research would be required in terms of dollars or
7 manpower or any such measures?

8 MR. ROBERT BROWN: I believe we could have
9 in the Bay of Fundy, a tidal power station to the
10 capacity of 600 megawatt going within a short term. And
11 the research that you would achieve from such a project
12 would be... put you amongst the leaders in the world
13 market. And there is a world market for tidal power
14 stations. And if anybody can do it, the Canadian
15 engineers can do it.

16 THE CHAIRMAN: Dr. Lapierre?

17 DR. LOUIS LAPIERRE: Thank you Mr. Brown for
18 your comments. However I would still like to know if you
19 have an opinion on ... we presently do have wastes and
20 there's a concept put forth to dispose of this waste.
21 I'll ask you two questions. Do you have any comments
22 first of all on the concept of deep disposal and,
23 secondly, do you think that waste should be kept at the
24 site of generation or should be ... should it be trans-
25 ported to a single Canadian facility? Do you have ideas



1 on this?

2 MR. ROBERT BROWN: I haven't got any answers
3 for a hayrick that should have been detected years ago,
4 thirty (30) ... it should have been seen twenty-five (25)
5 or thirty (30) years ago.

6 I've been working in nuclear power stations
7 for twenty-five (25), thirty (30) years and it was
8 obvious that we were heading for a problem but nobody
9 seemed to pay any attention. Now the lifespan of
10 nuclear power station has eroded and you've got headaches
11 in Canada and the rest of the world.

12 What you're going to do with the nuclear
13 waste you've already got is a problem. I honestly
14 haven't got the answers but if I was going to look at it
15 seriously, I would put it somewhere very far away from
16 mankind and deep into the earth.

17 THE CHAIRMAN: Thank you very much Mr.
18 Brown.

19 ---Mr. Brown withdraws.

20 THE CHAIRMAN: Next on my list is Dr.
21 Tippet who is kind enough to deliver a message from
22 another group which will not be represented but wants to
23 make a presentation on their own behalf if I'm correctly
24 informed.

25 Dr. Tippet.



1 PRESENTATION BY DR. TIPPETT:

2 I'm speaking only for myself, I'm not speaking for ...

3 THE CHAIRMAN: Thank you Dr. Tippet.

4 DR. TIPPETT: O.K.

5 THE CHAIRMAN: Please proceed.

6 DR. TIPPETT: O.K. I had four (4) concerns
7 that I wanted to talk about, the terms of reference I
8 felt were too narrow to review the concept properly. And
9 a second (2nd) concern was that citizens and groups
10 representing the public interest have been denied
11 sufficient time and resources to fully represent the
12 public interest.

13 And third (3rd), the vast majority of the
14 public is really not fully aware of the significance of
15 these hearings and the format of these types of hearings
16 is usually quite intimidating and boring and most New
17 Brunswickers don't like to attend these things.

18 And the meeting hall, I wanted to point out
19 the meeting hall was changed after announcements were
20 made that the meeting was somewhere else and that could
21 deter some people from coming.

22 And the fourth (4th) one I wanted to point
23 out was the lack of trust in the process and in the
24 government agencies involved.

25 I'll talk mostly about the terms of



1 reference being too narrow. Although the panel has been
2 ordered to address "the future steps to be taken in the
3 management of nuclear fuel wastes in Canada", the terms
4 of reference seem to exclude discussing some of the most
5 important factors in any waste management program.

6 These factors are familiar to all Canadians
7 today as the "r's", "refuse, reduce, re-use, repair and
8 recycle".

9 Refuse is what most Canadians would like to
10 do with nuclear power plants today, in spite of the
11 C.N.A. advertising campaign ...

12 And reduce is the second (2nd) best al-
13 ternative the public would like to have. Re-use and
14 recycle are not good waste management techniques for high
15 level nuclear waste, because they lead either to more
16 nuclear waste, more nuclear bombs or both.

17 If the issue of making nuclear bombs from
18 nuclear waste is not thoroughly dealt within this review,
19 and the options of refusing and reducing production of
20 nuclear waste are not considered, the review will be
21 quite inferior.

22 Our Regional Solid Waste Commission that
23 deals with ordinary household garbage, decided to spend
24 money to find out how much garbage we produce and how
25 that can be reduced. They said they had to do that befo-



1 re they could decide on how to dispose of the garbage and
2 where. It is much more important to do this with the
3 much more dangerous, long lasting, high level nuclear
4 waste.

5 Yet, the terms of reference may exclude
6 consideration of refusing further nuclear waste
7 production in order to reduce the size of the nuclear
8 waste disposal problem. The terms of reference seem to
9 assume that the panel will find the concept of geological
10 disposal acceptable and suggest only some tinkering to
11 mitigate the negative consequences and define some level
12 of damage as "acceptable". How could such flawed terms
13 of reference be given to the panel? The project proposal
14 background gives some clues.

15 It states that in 1977, "an independent
16 expert group" was commissioned by the Department of
17 Energy, Mines and Resources and this group directed
18 research efforts toward deep geological disposal.

19 Exactly how independent were these experts?
20 On page 52, they stated

21 "It has been widely asserted that no method
22 is available for the safe disposal of
23 nuclear waste, and that their interim
24 management also presents serious hazards.
25 Our conclusions are more optimistic."



1 And elsewhere

2 "We see no reason why the disposal problem
3 need delay the country's nuclear power
4 program."

5 This group chose geological disposal as a
6 "safe" method, even though they knew that:

7 "released radionuclides would reach the sur-
8 face and will be incorporated into soil,
9 water, streams and lakes. They will run
10 through the ecosystems and may be locally
11 reconcentrated by organisms."

12 And they considered that safe. Like other
13 experts of their time, they believed what we know is a
14 falsehood, they believed the solution to pollution was
15 dilution. Even these experts complained that their terms
16 of reference were too narrow although the panel has been
17 ordered they were allowed to discuss the diversion of
18 nuclear waste for military purposes, so their terms of
19 reference were broader than this panel's apparently.

20 If those experts had been truly independent,
21 we would not be facing the size of the problem we are
22 facing today, we would have more options to discuss and
23 we in New Brunswick would not be facing the problem at
24 all.

25 In a cursory reading of this document, I



1 have detected a number of errors. It is a poor document
2 to form the background for consideration of a problem
3 that affects not only this generation, but many
4 generations into the future. This document and the terms
5 of reference as a whole are evidence that we were the
6 wrong society to have developed nuclear power, and the
7 resulting nuclear wastes. The throwaway society should
8 not have developed something that cannot be thrown away.

9 The "me" generation should not be making
10 decisions that will harm many generations into the
11 future. The authors of the background paper may have
12 considered geological disposal acceptable because the
13 nuclear would not likely come out until after they were
14 gone.

15 Under the terms of reference, the panel is
16 to review the safety and acceptability of AECL's concept
17 of geological disposal of nuclear fuel waste in Canada,
18 a concept of a dump which according to the background
19 document, is guaranteed to leak. It is obvious before
20 you start that this is neither safe nor acceptable. And
21 no amount of mathematical or scientific gobbledegook will
22 make it so.

23 The citizens and public interest groups have
24 been denied sufficient time and resources to fully
25 represent the public interest. When the telephone



1 company proposed to raise telephone rates in New
2 Brunswick, a lawyer went before the Public Utilities
3 Board to represent the public interest. He was given
4 sufficient time and resources to examine the telephone
5 company's proposal and its justification for a rate
6 increase. He was allowed to question the telephone
7 company. Compare that system with this. We are not
8 given access to the material we need to prepare our
9 presentation, we have very little time, few resources, we
10 are not allowed to bring in a lawyer and question the
11 people who are proposing to bury this dangerous material.
12 We have the terrible responsibility to the public to
13 bring forward all the items that are essential to be
14 covered in a review of this proposal, yet we have not had
15 sufficient time or resources to do this.

16 Lack of trust in the process and the
17 government agencies involved. Recent polls have shown
18 that the public is fed up with the Government, that they
19 don't trust politicians or Government officials, I
20 certainly agree with the majority. I took part in a
21 scoping session for an Environmental Impact assessment
22 once before, one that caused me to lose faith in the En-
23 vironmental Assessment and Review Process. In that case
24 as well as this, the terms of reference were too narrow
25 to provide an adequate assessment of the environmental



1 impacts. I also found the panel biased in favour of the
2 proponent. I have enclosed a copy of my testimony, but
3 the entire transcript is an example of how the public's
4 faith in this process has been destroyed in this
5 community.

6 During that EARP, it was stated that the
7 high level nuclear waste would soon be removed from New
8 Brunswick, so it was necessary to assess environmental
9 impacts of keeping it here. However, not long ago, we
10 discovered that this was untrue, they plan to keep it
11 here in concrete containers. After the public objected
12 to this, the Atomic Energy Control Board held a public
13 hearing here about above ground storage of high level
14 nuclear waste and concluded that an Environmental Impact
15 Assessment was not desirable. This further increased the
16 percentage of cynics in our population. I have enclosed
17 my concerns about this method of high level nuclear waste
18 management which were dismissed without response by the
19 AECB.

20 According to the 1977 background document
21 previously quoted, New Brunswick is not a suitable place
22 to store high level nuclear waste. It is geological
23 unsuitable. It is an area of moderate earthquake risk.
24 Yet plans are being made to store high level nuclear
25 waste here. No wonder the public has loss faith in the



1 Government.

2 To summarize, the terms of reference and
3 background are biased in favour of the proponent. The
4 proponent wants to bury dangerous, long-lasting material
5 under the ground in a dump guaranteed to leak. This is
6 neither safe nor acceptable.

7 The panel needs a broader mandate to deal
8 adequately with the serious problem of high level nuclear
9 waste, and the members of the public need more time and
10 more resources so they can fully express their concerns.

11 The panel also needs to take action to
12 change the perception that the public is being shafted.

13 THE CHAIRMAN: Any questions from panel
14 members to Dr. Tippett?

15 DR. LOUIS LAPIERRE: I have a question.

16 THE CHAIRMAN: Dr. Lapierre?

17 DR. LOUIS LAPIERRE: Dr. Tippett, I wonder
18 if you might offer a few suggestions as to how the
19 process of helping the public get more time, in factor of
20 time, because there will be second review of the final
21 process. What time factor are you looking at and also
22 what resources would you consider adequate?

23 DR. TIPPETT: Well I found that this time
24 scale was hard for me because I have to work and it's
25 hard to make time to prepare these things and I would



1 have liked to have had the material that's available.
2 Apparently that newspaper that comes out called Dialogue,
3 there was some sort of a data base and information that
4 was supposed to be made available to people who were
5 preparing briefs and there was an announcement in there
6 that that data base was no longer going to be made
7 available. It was... it was only a list of resources
8 that were available. It wasn't the resources themselves.
9 A person would have to write away for those. I think
10 that was less than good enough and to take even that away
11 is pretty ridiculous.

12 DR. LOUIS LAPIERRE: But how long do you
13 think that time frame should be?

14 DR TIPPETT: The time frame?

15 DR LOUIS LAPIERRE: Yes, to give the
16 public....

17 DR. TIPPETT: It depends on how much
18 material there is to go through and how, you know, how
19 much... how far it is for us to get access to the
20 material we need to prepare the briefs. The harder you
21 make it to get the material, the harder it is to prepare
22 the briefs.

23 THE CHAIRMAN: Other questions to Dr.
24 Tippett? Dr. Fyfe?

25 DR. WILLIAM FYFE: Excuse me, I was reading



1 you probably know the World Resource Institute in New
2 York, and I was just reading some of their stuff very
3 recently and it's interesting I think, to note that of
4 all energy forms in the world, nuclear is growing faster
5 than anything else. So there is a reason to look at
6 nuclear waste. I just put that in for background but, I
7 was wondering, you say in your document: "refuse is what
8 most Canadians would like to do with nuclear power plants
9 today." How do you know that?

10 DR. TIPPETT: I think there was a poll done
11 in New Brunswick that said 72% of New Brunswickers were
12 opposed.

13 DR. WILLIAM FYFE: That was for New Bruns-
14 wick.

15 DR TIPPETT: For New Brunswick, I think it's
16 pretty general.

17 DR. WILLIAM FYFE: Yes. Because I'm won-
18 dering, you know, this is the problem we all face. How
19 do we get opinion, what your raising yourself, and
20 historically, another thing interested me in New
21 Brunswick, who made the decision to put the first (1st)
22 reactor into New Brunswick?

23 MS. JANET DINGWELL: NB Power, NB Power and
24 the Government, not the local people.

25 DR. WILLIAM FYFE: Who's the government?



1 MS. JANET DINGWELL: AECL, NB Power...

2 DR. WILLIAM FYFE: It intrigues me becau-
3 se... this is a problem we all have...

4 DR. TIPPETT: Did you want an answer to
5 that?

6 DR. WILLIAM FYFE: No, no, no, I think we
7 got it...

8 DR. TIPPETT: Oh, I can give you some
9 background. I understand that Mr. Hatfield requested a
10 tidal power project and that "crétin"... said "you can't
11 have that, all you can have is a nuclear plant." That's
12 what I understand from...

13 DR. WILLIAM FYFE: I wasn't here in New
14 Brunswick obviously when that was decided. It interests
15 me, how did New Brunswick make this decision?

16 MS. JANET DINGWELL: One choice, nuclear
17 power or no jobs.

18 FROM THE FLOOR: You got it, mega project or
19 nothing.

20 FROM THE FLOOR: That's the message indeed.

21 DR. WILLIAM FYFE: Thank you.

22 THE CHAIRMAN: Dr. Lapierre?

23 DR. LOUIS LAPIERRE: Dr. Tippett, I'd still
24 like to... I asked this question of most of the people
25 who have presented this evening but I would like to hear



1 your views about it. There is waste there regardless of
2 what happens. What are your views as to what should
3 happen to that waste. There was a concept put forth...

4 DR. TIPPETT: Yes...

5 DR. LOUIS LAPIERRE: Would you care to
6 expand?

7 DR. TIPPETT: In my brief, I said why that
8 concept was unacceptable. And I think I agree with Dr.
9 Ursula Franklin that the first thing you do is stop
10 making it. And then you consider all the options for
11 disposing of it. And you consider it in a scientific
12 way. You don't push one at people with glossy brochures
13 and fancy adds on TV and tell people the problem is
14 solved.

15 You have to have independent scientists
16 review the different possibilities and you have to... you
17 can't ... you can't put it under the ground and leave it
18 there, abandon it there because it's going to come back.
19 You have to keep it where... where you can use different
20 methods depending on as more scientific methods are
21 developed that are more secure, you can use those. Once
22 you've dumped it somewhere and left it, then it just gets
23 out into the environment.

24 DR. LOUIS LAPIERRE: But as an individual,
25 you've obviously given this... the nuclear issue some



1 thought. With the statement knowledge that you now have,
2 what would you do with it?

3 DR. TIPPETT: Well, I think I've answered it
4 pretty well right there, that you have to use ... you
5 have to go through the different options. You have to
6 study the matter.

7 You have to have independent people look at
8 all the material. You can't keep it secret from the
9 public. Everything has been kept secret from the public.
10 We aren't allowed access to the material we need to make
11 a decision to answer your question.

12 DR. LOUIS LAPIERRE: Thank you.

13 THE CHAIRMAN: Dr. Wilson?

14 DR. LOIS WILSON: I skimmed over one of your
15 other interventions and you made the point there that I
16 assume you would make here if you had time, that the
17 panel insure all epidemiological data available on health
18 effects of nuclear reactors is located and studied.
19 Could you suggest by whom and how?

20 DR. TIPPETT: Yes, I put that in because I
21 thought it was kind of appropriate because it showed that
22 it was a concern that I raised at that time that they
23 dismissed. They said there's no need to study health
24 effects around nuclear reactors, there are no health
25 effects around nuclear reactors, so why should we study



1 them. You see, it shows, it shows a problem there. And
2 now with the Gardiner studies, we know that there are
3 health effects. We know that there are problems and yet
4 they haven't been studied... They should have been
5 studied long before this.

6 DR. LOIS WILSON: I'm asking you if you have
7 any suggestions for the panel how and by whom this could
8 be done?

9 DR. TIPPETT: How the epidemiological study
10 should be done? It should be done by people in the
11 field, people in public health, people in research,
12 medical research. But certainly not by AECL.

13 THE CHAIRMAN: One moment please, Ms. Roy?

14 MS. LOUISE ROY: Doctor, assuming that we've
15 heard from the people tonight, that no more waste should
16 be generated.

17 DR. TIPPETT: Um-hum.

18 MS. LOUISE ROY: Is this useful from your
19 point of view, to address the question of the waste if
20 this question is not included in a broader review related
21 to policy, energy policy?

22 DR. TIPPETT: No, I think the people have to
23 consider that. I think it's part of a waste management
24 strategy and you're supposed to be dealing with a broad
25 waste management strategy and even for garbage, household



1 garbage, the waste management strategy involves, all
2 those five "r's" so you people should be dealing with
3 that as well.

4 MS. LOUISE ROY: O.K. So it is useful, it
5 is useful from your point of view to try to address the
6 question of the waste even if it's not related to a
7 broader review if we assume that no more waste should be
8 generated?

9 DR. TIPPETT: This is part of your job, to
10 deal with it.

11 MS. LOUISE ROY: O.k. yes.

12 THE CHAIRMAN: Thank you very much, Dr.
13 Tippett.

14 ---Dr. Tippett withdraws.

15 THE CHAIRMAN: My next request is from Dr.
16 Ian Campbell. Dr. Campbell, the mike is yours.

17 PRESENTATION BY DR. IAN CAMPBELL:

18 Thank you very much Mr. Chairman. I have a
19 very modest sort of suggestion to make to the panel. I
20 don't have any polished presentation, just a note that
21 occurred to me when I was listening to the presentations.

22 As a professional educator, as a university
23 professor who lectures on the subject of the environment
24 and power generation, I'm most actually surprised I think
25 by how little my students know about the subject and I



1 think there's a need for an explanation when you actually
2 come to present your results to the public in a way they
3 can understand.

4 I'm sure that the distinguished panel of
5 experts that will be evaluating the technical aspects
6 will provide a realistic assessment of the problem and I
7 must congratulate you on the eminence of the people who
8 were appointed to these positions.

9 But we scientists in general, very often,
10 are not very good at explaining things in terms that the
11 public can understand. I'd just like to illustrate this
12 by an example from one of the very independent and well
13 respected expert on the safety of nuclear power,
14 professor Bernard Cohen of the University of Pittsburg.

15 He has done very detailed studies of the
16 waste, the waste disposal problem but in his book "Before
17 it's too late", he presents I think, the sort of argument
18 that he uses I think, is one that, the sort of way he has
19 of presenting it is one I think that is very convincing.
20 He points out that nuclear waste is often regarded as
21 some sort of unique hazard. And he points out that the
22 fuel which is used to the nuclear reactor, the uranium is
23 itself a radioactive material which is widely distributed
24 over the earth surface and that putting it into the reac-
25 tor takes it out of circulation and therefore reduces the



1 radiation to the public by a small amount. Essentially
2 its use in the reactor, essentially uses up some of the
3 uranium and replaces it with a more concentrated form of
4 radioactivity.

5 And Cohen has showed in his calculations
6 that, assuming that the nuclear waste itself is treated
7 by deep disposal, the likely dose of radiation to the
8 public would be less than that from the original uranium,
9 which of course is scattered around in the rocks of the
10 earth and he argues that in this sense, using the uranium
11 in reactors is helping to clean up the radioactivity.

12 I don't attempt to assess the validity of
13 that argument although, as I say, Dr. Cohen is a very
14 respected independent expert but I think that the kind of
15 argument that he's using there is a sort of argument I
16 think that in the end, depending on what the conclusions
17 of the distinguished panel of experts is, is a sort of
18 way of presenting the results in a way that the public
19 can understand them and demystifying the whole question
20 of the nuclear waste.

21 I would certainly recommend to you, if
22 you're not familiar with it, Cohen's book. As I say,
23 it's called "Before it's too late." And it is, I think,
24 a very well written and very vividly presented set of
25 arguments in a way it could be understood by the public.



1 Thank you Mr. Chairman.

2 THE CHAIRMAN: Are there any questions
3 anyone would like to put to Dr. Campbell? I appreciate
4 it that you just made a comment on the ... thank you very
5 much sir.

6 ---Dr. Campbell withdraws.

7 THE CHAIRMAN: Now...

8 MS. JANET DINGWELL: May I make a statement?

9 THE CHAIRMAN: Please, if you'll just give
10 your name and as you come up here, I'd be happy to have
11 participation by any members of the audience.

12 PRESENTATION BY MS. JANET DINGWELL:

13 People Against Lepreau 2 who made the
14 presentation tonight certainly would probably feel that
15 they might be a bit out of line mentioning this. I do
16 not. I'm a member of the Alumna of the University of New
17 Brunswick, both UNBSJ and UNB Fredericton. I'm presently
18 completing my Masters Degree in deep ecology.

19 It's quite a new field and when the
20 University of New Brunswick was approached to hold the
21 public meeting there, that request was met with the word
22 to be gentle about this... It was not met respectfully
23 and a lot of rigomarole for lack of a better word, was
24 given till finally it became impossible to wait for an
25 answer.



1 Therefore, they withdrew ... People Against
2 Lepreau 2 withdrew that request. I found that very, very
3 strange seeing that a university regardless of what
4 its... the personal beliefs of the physics department
5 are, should help and do everything they possibly can, to
6 encourage dialogue on both parts, be it negative or
7 positive, given any subject.

8 I am usually very proud of the University of
9 New Brunswick, I was offered a lot of money to go to many
10 others and I chose UNB simply because of the wonderful
11 teachers there but, after PAL submitted that request, I
12 became sceptical and upon digging a little bit, I find
13 that NB Power is quite often involved in the physics
14 department at the University of New Brunswick
15 and I wondered if the University of New Brunswick was
16 not... was so reluctant to set up this meeting because of
17 that.

18 I do plan on writing to or maybe even
19 directly going to see the Dean about this matter. I find
20 it very bothersome, being a member of the University so
21 therefore, I would ask that we take the comments that
22 went before this, with a grain of salt. Thank you for
23 allowing me to speak.

24 THE CHAIRMAN: Thank you. I said that we
25 would ask Mr. Jeff Galbraith to come back for a second



1 round if he wishes to present the additional submission
2 from another group on whose behalf he is speaking. Mr.
3 Galbraith?

4 PRESENTATION BY MR. JEFF GALBRAITH:

5 I'd like to thank you for allowing me to
6 return and make this final presentation on behalf of
7 Patrice Gordon of Eco-Chaleur. I'd like to mention before
8 I start just that it was originally written in French and
9 it's been translated so it may lose a little something in
10 the translation but I'll go through it as best I can.

11 Ladies and gentlemen, each day, more and
12 more Canadians become conscious of the environmental
13 problem caused by household waste. Many citizens are
14 involved or want to be involved in finding a solution to
15 the problem. Therefore, it would be ridiculous to think
16 that these people do not have the same worries when it
17 comes to nuclear waste.

18 Gallop polls reveal that favourable support
19 to the expansion of nuclear waste has diminished from 46%
20 to 16% from 1978 to 1988. According to polls made by
21 Decima in June of 1989, public opinion is firm. Nuclear
22 power is not to be used to produce electricity in Canada.

23 It is more and more apparent that the
24 Canadian public is becoming aware of the problems caused
25 by the use of nuclear power in Canada. We are worried



1 and we gather information and we discover that the
2 population's wishes are not respected.

3 The Canadian government, the Atomic Energy
4 of Canada Limited, as well as provincial governments are
5 giving us a deaf ear. Not only do they continue the pre-
6 sent use of nuclear power, they are actively preparing
7 the construction of new reactors for the future. All
8 this time, nuclear waste is accumulating. Nuclear waste
9 production is like lighting a match and never being able
10 to put it out. The message we have to make today is
11 simple. Do not produce what you cannot control.

12 Cease all use of nuclear power in Canada.
13 Say no to nuclear waste coming from foreign countries.
14 Store the existing waste using the safest available
15 methods and make periodical verifications to ensure that
16 it does not constitute a health hazard to the population
17 and to the ecosystem. To maintain adequate control of
18 nuclear waste will be an enormous task until safe
19 disposal methods are found.

20 Please note that there are presently no safe
21 methods to dispose of nuclear waste. In practice, we
22 would have to wait ten thousand (10 000) years to see if
23 any method is good or not.

24 Now I wish to discuss alternatives to
25 nuclear power. I do not mean super hydro-electric power



1 stations like James Bay. Cold fire power plants like the
2 one being built in Belledune, or the oil fired ones like
3 the ones being built in Sainte-Rose and Millbank. I wat
4 to talk to you about means of producing energy with a
5 minimum of pollution as well as conservation of energy.

6 The Canadian Government as well as
7 provincial governments are quite a ways behind by
8 comparison to other countries when it comes to discussing
9 alternatives. As a first step, conservation of energy,
10 has to be set in the foreground when we discuss energy.
11 To diminish the waste has to be our calling card.

12 Many new technologies, efficient motors and
13 light bulbs, insulation etc, can now permit us to reduce
14 considerably our use of electricity without reducing the
15 services.

16 Industrial co-generation, the simultaneous
17 production of heat and electricity from the same
18 combustible source. Small decentralized generators like
19 small hydro electric power stations.

20 Solar energy has been used to produce energy
21 in solar power stations since the beginning of the 60's.
22 Windmills, wind turbines and aero generators are widely
23 in use in Holland and the United States.

24 Natural gas, methane, that already runs into
25 the province of Quebec via a pipeline, could be used in



1 New Brunswick as a combustible.

2 It is far less polluting than nuclear
3 energy, coal or oil. To finish, I would like to say that
4 the monies spent annually by the Canadian Government to
5 subsidize nuclear power in Canada could be put to better
6 use in other domains.

7 The two hundred million (200M) dollars from
8 Canadian tax payers would be better spent if it were used
9 for research development and put into use safe and non
10 polluting alternatives. Thank you.

11 THE CHAIRMAN: Thank you very much Mr.
12 Galbraith for presenting that additional brief.

13 ---Mr. Galbraith withdraws.

14 THE CHAIRMAN: I'd ask now, are there any
15 others who wish to speak of the subject... who would wish
16 to speak of the subject this evening? If not, it remains
17 only for me to thank you all very much for, first of all
18 being present this evening.

19 Secondly, for participating, making your
20 presentations, those who have done so. They will all be
21 carefully examined. We'll have the opportunity ourselves
22 to go through the transcripts again and where you have
23 submitted them, to go through the briefs and we will keep
24 in mind the observations you have made even though as we
25 ourselves have said, some of them range somewhat beyond



1 what is the present mandate or the mandate that has been
2 given to this panel.

3 We will be meeting again tomorrow morning at
4 nine o'clock (09:00). So far as I know, there are
5 perhaps two (2) participants then. But if there are more
6 of course, we will welcome them.

7 FROM THE FLOOR: Who is on the list for
8 tomorrow, we haven't had an updated list?

9 THE CHAIRMAN: The list I have for tomorrow
10 is Dr. George Betts of the University of New Brunswick
11 and I haven't written the other, I think I heard that
12 there was one (1) other person who might be on hand
13 tomorrow but as of our arrival here, we had not had
14 anyone inscribed, Dr. Betts indicated this afternoon that
15 he would like to speak and there may be one other but I'm
16 not sure.

17 Thank you very much for turning out this
18 evening.

19 ---Whereupon the hearing was adjourned, to be reconvened
20 at 9:00 a.m. on November 6, 1990, in St. John, New
21 Brunswick.

22 I, YVAN G. LEMAY, the undersigned Official
23 Court Reporter, hereby certify the foregoing
24 is a true and faithful transcript of these
25 hearings taken by means of stenomask.

Yvan Lemay
YVAN G. LEMAY,
Official Court Reporter

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BUREAU FEDERAL
D'EXAMEN DES EVALUATIONS
ENVIRONNEMENTALES

Held at/Auditions tenues au:
St. John Trade
and
Convention Centre

Date: Tuesday, November 6, 1990
Mardi le 06 novembre 1990

Volume: 8

B E F O R E / D E V A N T :

MR. BLAIR SEABORN

Chairman/President

MS. LOUISE ROY

Member/Membre

DR. LOIS WILSON

Member/Membre

DR. LOUIS LAPIERRE

Member/Membre

DR. WILLIAM FYFE

Member/Membre

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ON NUCLEAR FUEL WASTE
MANAGEMENT

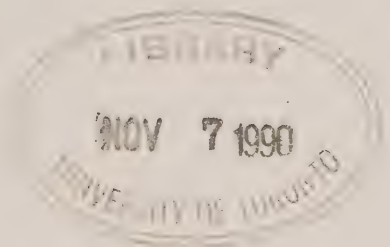
BUREAU FÉDÉRAL D'EXAMEN
DES ÉVALUATIONS
ENVIRONNEMENTALES
DE LA GESTION DES DÉCHETS
DE COMBUSTIBLES NUCLÉAIRES

SCOPING MEETING
RÉUNIONS DE DÉTERMINATION DE L'IMPORTANCE DES PROBLEMES

Hearing held at/Auditions tenues au:
St John Trade and Convention Centre
St John, New Brunswick,

Tuesday November 6th/Mardi le 06 novembre
1990
09:00 a.m./09.00 heures

VOLUME 8



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Member/Membre

DR. LOUIS LAPIERRE

Member/Membre

DR. WILLIAM FYFE

Member/Membre



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LIST OF PARTICIPANTS

LISTE DES INTERVENANTS

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JEFF SOCHASKY

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MARY LOU HARLEY

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1 ---Upon commencing at 9:00 a.m.

2
3 THE CHAIRMAN: Good morning, ladies and
4 gentlemen. I almost feel I should apologize for the
5 vastness of this room, given the turnout of the faithful
6 who are here. Through some slip of the hotel, this
7 convention centre had booked the other room which we had
8 last night and asked us if we'd mind very much moving
9 over here for the morning session. This is for those who
10 have not been at the afternoon or evening sessions here
11 in St-John, a scoping meeting being held by the Envi-
12 ronmental Assessment Panel which is reviewing the nuclear
13 fuel waste management and disposal concept.

14 The meeting is being conducted in English
15 though if people wish to make presentations in French,
16 feel free to do so and there are provisions for
17 translation into French, I'm making a correction on that.
18 It seems the translators didn't get moved over here last
19 night at the last moment. However, feel free to make
20 presentations in French if you will and we will, we will
21 manage.

22 The members of the panel who are with me
23 this morning at the ... my far left, your right, Dr.
24 Louis Lapierre, professor in the Department of Biology at
25 the University of Moncton. Also chairman of the



1 Environmental Council of New Brunswick. To my immediate
2 left, doctor Lois Wilson of Toronto, president of the
3 World Council of Churches and co-director of the
4 Ecumenical Forum of Canada.

5 To my immediate right, Ms. Louise Roy, an
6 environmental and public affairs consultant residing in
7 Montreal. Ms. Roy is former vice president of the Quebec
8 Public Hearing Board on the environment and a member of
9 the Canadian Environmental Assessment Research Council.

10 And to her right again, this end of the
11 table, Dr. William Fyfe, a professor in the Department of
12 Geology and Dean of the Faculty of Medicine at the
13 University of Western Ontario, in London Ontario.

14 Unfortunately one of our members is not
15 feeling well, Mr. Van Vliet, an Engineer, a Mechanical
16 Engineer from Regina who is also in the Senate of the
17 University of Regina. I hope that he may be able to join
18 us a bit later on.

19 My name is Blair Seaborn, I'm
20 Chairman of the panel. I live in Ottawa, I'm retired but
21 I served previously as a Deputy Minister of the
22 Environment and Canadian Chairman of the International
23 Joint Commission.

24 Correction, the translators are here. I
25 was looking to the back of the room and we do have



1 translation this morning. If you wish headsets, please
2 obtain them for the translation which is being undertaken
3 now.

4 This review is being conducted in
5 accordance with the Federal Environmental Assessment and
6 Review Process, EARP. Some of you I think may have had
7 previous occasion to know of its work and we try to give
8 some explanation on that process during open houses which
9 were held in this city amongst others, in May and June of
10 this year.

11 The panel which is before you today has
12 been asked in part, to examine the nuclear fuel waste
13 management and disposal concept which is a proposal for
14 permanent disposal of used nuclear fuel deep in the
15 granitic rock of the Canadian shield.

16 I'd like to say a few words about the
17 mandate of the panel. It's terms of reference state that
18 it is to review, the safety and acceptability of that
19 concept for geological disposal of nuclear fuel waste in
20 Canada, as has been proposed by Atomic Energy of Canada
21 Limited. But in addition to the AECL proposal, we shall
22 examine a broad range of nuclear fuel waste management
23 issues including long term management, transport, and
24 environmental, social and economic effects.

25 We will look at approaches to nuclear



1 fuel waste management and disposal being developed
2 elsewhere in the world.

3 However since site selection will not
4 occur until a disposal concept has been accepted as safe,
5 the panel will not consider any specific sites, but it
6 will review the potential availability of sites and the
7 methodology and criteria required for site selection.

8 I'd also like to say a word about what is
9 not in our mandate and therefore will not be addressed in
10 this review. The energy policies of Canada and the
11 provinces, the role of nuclear energy within these
12 policies including the construction, operation and safety
13 of new or existing nuclear power plants. F u e l
14 reprocessing as an energy policy and military
15 applications of nuclear technology. All of these are
16 outside of our mandate.

17 And to be clear however, the panel is
18 very much aware of the broader concerns related to the
19 use of nuclear materials and the use of nuclear power for
20 the generation of electricity.

21 We have been urging for some time, a
22 broader review of a comparative environmental implication
23 of the various methods of generating electricity and I
24 understand that the process of getting such review is now
25 under way, that letters have gone out to a number of



1 provincial deputy ministers and to a number of interest
2 groups in both the energy and environmental funds, to
3 seek their views on the terms of reference for such a
4 review.

5 So I hope this is a good indication that
6 things are getting under way in that respect. I think it
7 is a necessary activity and one which will certainly help
8 to fit the work of this panel into a better perspective.

9 The purpose of these scoping meetings is
10 to allow participants to identify issues that need to be
11 addressed in the Environmental Impact Statement that will
12 be prepared by AECL.

13 The panel is not requesting the
14 presentation of opinions on the substance of the disposal
15 concept at this time. Public hearings will be held later
16 to discuss whether the AECL proposal is acceptable or
17 not.

18 At the conclusion of the series of
19 meetings, the panel will prepare draft guidelines for the
20 preparation of the environmental impact statement by
21 AECL. Those draft guidelines will be made available to
22 the public for a period of at least thirty (30) days and
23 we hope to have public input to those by way of
24 correspondence or telephone calls before we put the
25 guidelines in final form and provide them as instructions



1 in effect, to Atomic Energy of Canada Limited.

2 The process of preparing that
3 Environmental Impact Statement, I'm told, may well take
4 a year (1) to a year and a half (1½). It is expected to
5 be a very comprehensive one.

6 Once the panel is satisfied and on
7 receipt of that report Environmental Impact Statement,
8 once we're satisfied that AECL has addressed
9 satisfactorily all the items which we have identified at
10 this present time in the guidelines, we will hold a
11 series of public hearings. At that point, participants
12 will be asked to discuss the acceptability of AECL's
13 disposal concept in detail.

14 The panel will consider all comments
15 submitted to it and will at the end of this whole
16 process, submit its report to the ministers of
17 Environment and of Energy, Mines and Resources.

18 Could I ask that any of those who have
19 registered to speak summarize their concerns in fifteen
20 (15) minutes unless you have indicated in advance that
21 you'd like longer than that and we can make provision of
22 course for an additional ten (10) if you'd like it.

23 I would want to stress that the panel
24 will pay equal attention to written and oral statements.
25 If any of you have written versions of what you are going



1 to say to us this morning, that would be helpful to the
2 secretariat.

3 You can speak to the members of the
4 secretariat though I already have two (2) people re-
5 gistered and I think we can given the smallness of
6 numbers, we can handle this informally this morning.

7 Let me also say that we will accept
8 written submissions if anyone would like, having attended
9 these sessions to put some thoughts down on pager, we
10 will accept written submissions, identifying issues and
11 concerns up to and including the end of this month,
12 November 30th, 1990.

13 With this by way of introduction to the
14 morning session, I would like to call first (1st) on Dr.
15 George Betts of the University of New Brunswick who will
16 speak to us this morning. Could you take your place at
17 the table.

18 It seems rather elaborate but it's easier
19 for the translators and of course also for anyone else in
20 the audience.

21 PRESENTATION BY DR. GEORGE BETTS:

22 Mr. Chairman, I have a rather bad cold,
23 so if I have a cough or sometimes break off, please,
24 please excuse me.

25 My name is George Betts and I teach at



1 UNBSJ. More important, as a political scientist, I teach
2 a new third (3rd) year course entitled "The Politics of
3 Environment". This course is in the nature of a trial
4 balloon. In a small University like UNBSJ, one can
5 expect about twelve (12) students in a third (3rd) year
6 evening course.

7 To my surprise, we have about thirty (30)
8 registered which I think shows the current interest in
9 matters environmental. What we are looking at, is the
10 whole question of how those quote "set in authority over
11 us" whether they be from the public or private sector,
12 are carrying out their mandate with regard to the ongoing
13 management of the environment or in the binocular
14 sustainable development. What kind of a task are they
15 making of it? How are they coping with what has been
16 called quote "the general agenda for change".

17 Well, we started our course by thinking
18 globally and hopefully acting locally. Way back at the
19 start, then with the World Commission on Environment and
20 Development report of 1987, our common future, chaired by
21 the Prime Minister of Norway "Gerharlen Bruntland."

22 The panel will recall that OCF posited
23 eight (8) common challenges or major issues, one of these
24 being energy.

25 An important part of this chapter was



1 given to the question of nuclear energy. It would take
2 too much time to go through this section of the report in
3 detail although it is well worth reading. However, I
4 would like to quote what the report says about
5 radioactive waste disposal on page 185. To quote the
6 report:

7 "Several nuclear energy programs
8 worldwide have already generated many
9 thousands of tons of spent fuel and high
10 level waste. Many governments have
11 embarked on large scale programs to
12 develop ways of isolating these from the
13 biosphere, for the many hundred of years
14 that they will remain hazardously
15 radioactive. But the problem of nuclear
16 waste disposal remains unsolved.
17 Nuclear waste technology has reached an
18 advanced level of sophistication.
19 This technology has not however been
20 fully tested or utilized and problems
21 remain about disposal".

22 The report goes on later to add:

23 "During the last twenty-five (25) years,
24 a growing awareness of the difficulties
25 outlined above has resulted in a wide



1 range of reactions from technical
2 experts, the public and governments.
3 Many experts still feel that so much can
4 be learned from the problems experienced
5 up to now. They argue that if the
6 public climate allow them to solve this
7 nuclear waste disposal and decommis-
8 sioning issues and the cost of borrowing
9 money remains reasonably below its 1980
10 to 82 peak, and the absence of viable
11 new supply alternatives, there is no
12 reason why nuclear energy should not
13 emerge as a strong runner in the 1990's
14 But the other extreme, many experts take
15 the view that there are so many unsolved
16 problems and too many risks for society
17 to continue with a nuclear future.
18 Public reactions also vary. Some
19 countries have exhibited little public
20 reaction. In others, there appears to
21 be a high level of anxiety that
22 expresses itself in anti-nuclear
23 results, in public opinion polls, or
24 large anti-nuclear campaigns".

25 I guess that my own somewhat limited nuclear experience



1 puts me in what Bruntland calls the high level of anxiety
2 category which I prefer to be in rather than among what
3 had been called the irrational "fearites".

4 I was in Hiroshima Japan, only some five
5 (5) years after the atomic bomb was dropped. Still an
6 experience I shall never forget. Two and a half (2½)
7 years ago, I was in the USSR with a party of Canadians,
8 Canadian vets from the Veterans against Nuclear Arms,
9 perilously close to Chernobyl, nobody told us about the
10 accident or its ramification I should add.

11 Kiev, where we stayed, still appeared in
12 a state of shock. It still hadn't fully recovered with
13 vegetables and meat in short supply. And many people not
14 yet having returned to the city, particularly the
15 children.

16 I recall vividly when I first remembered
17 where we were, with a sound sense of shock. Some of the
18 ladies in the party and myself were enjoying those
19 delectable if not very sanitary ice creams which one can
20 get on the street of most Soviet cities. I remember
21 taking a mouthful the thinking "Hello, what goes into ice
22 cream, milk. And what goes into milk, strontium 90."

23 But the others were cheerfully slurping
24 away, unconcerned and I determined with a stiff upper lip
25 not to ruin their day by telling them of the possible



1 consequences of the ice creams they were eating.

2 Seriously, next day, the whole party got
3 the wind up when having gone to close for comfort
4 apparently, to the Chernobyl nuclear site. We were made
5 to get out of our bus while geiger counters were run over
6 us at some risk. Again something not to forget.

7 Here in St-John too, we have had our low
8 if not high levels of anxiety. Cracks in the wall of
9 some of the cement pillars inside the plant. Some joker
10 fooling about with heavy water in the canteen area. And
11 hot loads in the port. That kind of thing. One wonders
12 what is going to happen when they start moving this
13 nuclear waste stuff about and dumping it in the Canadian
14 shield.

15 To add to my reputation as a nervous
16 Nelly, I was an explosives expert, yes blowing up things
17 when I was in the army. And I know from experience how
18 unstable that little lot can be. It doesn't exactly fill
19 me full of confidence when we're talking about
20 transportation and disposal of nuclear waste.

21 My other concern as a social scientist I
22 guess, is over the question of community acceptability.
23 Who or whom are going to make all these important nuclear
24 decisions on our behalf? The scientists and experts, the
25 political leaders, the business community? Are the



1 decisions to be made in secret, behind closed doors with
2 the public only to have a say after the important deci-
3 sions have been made?

4 You know what they used to say in the
5 industry where I came from, quote "Never trust an expert"
6 unquote. Far less politicians or business leaders. If
7 recent polls by Decima Research are anything to go by and
8 without going into these in detail, there was a long
9 article in the Globe and Mail on October the 1st which
10 said "Public cynicism growing businessmen rank with
11 politicians."

12 There's a high sense of cynicism, appears
13 to be abroad, among the Canadian public. Whoever is to
14 be responsible for calming these irrational fears, are
15 those who have my own high level of anxiety.

16 And I would suggest, there are many
17 people in these categories, although for a variety of
18 reasons, they won't appear at scoping meetings, we'll
19 have to do a heck of a job to gain any sort of
20 credibility with the general public.

21 Let me return finally to Bruntland. In
22 the conclusion to the section on nuclear energy, the
23 report points out that governments tend to take up three
24 possible positions.

25 Firstly, remain non nuclear and develop



1 other sources of energy. Secondly, regard their present
2 nuclear power capacity as necessary, during a finite
3 period of transition to safer alternative energy sources.

4 Thirdly, adopt and develop nuclear
5 energy, with a conviction that the associated problems
6 and risks can and must be solved with a level of safety
7 that is both nationally and internationally acceptable.

8 It appears, Mr. Chairman and ladies and
9 gentlemen, that we in Canada, are going at the minute
10 "pêle-mêle" for the third option. It is only to be hoped
11 that we really can rely on our nuclear experts.

12 Do they I ask myself, really all agree
13 and know what we are doing, because to misquote the Duke
14 of Wellington who, when asked about the reliability of
15 his troops before the battle of Waterloo, replied quote:
16 "They may or not frighten the enemy, gentlemen, but by
17 God, they scare the living daylights out of me." Thank
18 you.

19 THE CHAIRMAN: Thank you very much
20 professor Betts. I think that's the first reference
21 we've heard in these meetings to the Bruntland report.
22 And it was of course an important one and it remains
23 always interesting to have you remind us of that. Are
24 there any questions which members of the panel would like
25 to put to Dr. Betts? Dr. Lapierre?



1 DR. LOUIS LAPIERRE: Dr. Betts, I would
2 like to hear your comments on the disposal of the nuclear
3 waste, the concept, we have a concept before us. There
4 are different points of view that are emerging as we move
5 along. I wonder if you have any position on the concept
6 of disposal, transferring the waste to a central facility
7 rather than disposing it on site in an intermediate
8 storage, till we find other means or alternatives or ...

9 DR. GEORGE BETTS: Well, I'm no... I'm no
10 scientists and no expert, and I don't really want to sort
11 of be backed in to a corner saying yes or no. So I'm
12 going to give a politician's answer.

13 And that is what I'm really concerned
14 about and again, I come back to Bruntland, that is, both
15 on the national and international level, are we certain
16 that we've got the quite rank right or that kind of rules
17 and things in place for disposing.

18 Is there an international guideline and
19 standard set up whereby... what whereby we're organizing
20 these things. In a sense, we're damned if we do and
21 damned if we don't.

22 We've got so much of this stuff to
23 dispose of, how do we do it. Perhaps we should be and
24 this is just perhaps a fallacious suggestion, thinking
25 very hard and putting a lot of international minds to



1 work to find out that we've got that safety factor in
2 place for if you like, national disposal before we start
3 kind of mucking about.

4 And it also worries me a little bit that
5 perhaps thinking of shunting nuclear waste to Wales for
6 instance. That perhaps we ourselves are going to become
7 an international dumping site. If we are going to be and
8 the international community decide that that is so, and
9 this is the best place, well let's make certain that on
10 an international level, we are moving along together, to
11 make certain that one person's poison isn't anybody
12 else's if you follow what I mean. Not a very good answer
13 but the best I can offer in the circumstances doctor.

14 THE CHAIRMAN: Dr. Fyfe?

15 DR. WILLIAM FYFE: I'd just like to
16 follow that point a little bit because one of our ... a
17 person who presented, I think it was yesterday, raised
18 the issue that a problem like nuclear waste disposal
19 should be an international problem, not national.

20 DR. GEORGE BETTS: Exactly.

21 DR. WILLIAM FYFE: Are you agreeing with
22 that?

23 DR. GEORGE BETTS: I am, yes.

24 DR. WILLIAM FYFE: Because I think this
25 is an interesting...



1 DR. GEORGE BETTS: Yes, I am agreeing.

2 DR. WILLIAM FYFE: ... issue. Yes.

3 DR. GEORGE BETTS: Very much so.

4 DR. WILLIAM FYFE: That's not a reason
5 for shovelling it aside.

6 THE CHAIRMAN: Thank you very much indeed
7 Dr. Betts, for coming out from your bed of pain to speak
8 to us this morning.

9 DR. GEORGE BETTS: Unfortunately sir, I
10 have to go off and lecture too, so what voice I have
11 left, I must strain, thank you.

12 THE CHAIRMAN: Thank you for coming very
13 much indeed.

14 ---Mr. Betts withdraws.

15 THE CHAIRMAN: The next person I have on
16 my list is Mr. Jeff Sochasky if I pronounce it correctly.

17 PRESENTATION BY MR. JEFF SOCHASKY:

18 Thank you Mr. Chairman. I'm not a
19 lecturer, I'm not a public speaker. My background is
20 biology, environmental physiology, particularly of fishes
21 and whereabouts, I worked as a civil servant in St-
22 Andrew, at the biological station.

23 My background includes statistics and
24 I've spent a fair bit of time in the literature of
25 contentious issues in my field. You've eluded to the



1 numbers present today as a gathering of the faithful and
2 I think that phrase fits me fairly well. I'm here
3 because of the faith I have in the process of ... that
4 the process of resolving contentious issues that I have
5 been exposed to, is relevant to the matters here.

6 I see the same patterns here as I've seen
7 in other contentious issues and in the last few months,
8 as a result of one catalyst, tried to become much more
9 knowledgeable about the issues. I may run over as I say,
10 I'm not a public speaker and I'm not well prepared. I've
11 got some notes that I have been scribbled down to put my
12 thoughts in some sort of order but like the last speaker,
13 I believe that what I would really like to talk about are
14 the things that are outside your mandate. It's only with
15 a collection of thoughts that I can... that I have been
16 able to see where my concerns fit your mandate but I have
17 now got them in the order that they should be in for your
18 full benefit and for my satisfaction.

19 The problems I see in the concept are
20 several. One of them is risk assessment, the method of
21 risk assessment.

22 As I understand, the pardon me for saying
23 it, pro nuclear method of risk assessment, it balances
24 catastrophes or hazards of an accident with the
25 probabilities as they see them and by the combining the



1 low probabilities with the controversial levels of
2 consequences they say overall the risk is small and the
3 seriousness of potential consequences is not as... not a
4 serious factor.

5 I worry about this because this is not
6 necessarily the normal way of approaching hazardous
7 situations.

8 If the proponents were involved with the
9 safety of smoking, we might see a different approach. We
10 might see a ninety (90) years old, two pack a dayers
11 saying they have no trouble and parade it in front of us
12 regularly and if they were ... if the same approach was
13 used for Aids, we might be hearing arguments that the
14 consequences may be severe but your risk is low, so
15 unsafe sex isn't a particular problem.

16 But I don't... although I'm restricted
17 here, I think to using that sort of comparison, I think
18 the numbers could be used if one had more time. We are
19 in a period of changing awareness as to the health
20 effects of low level radiation, and that's the catalyst
21 that got me reading in this area. We are moving beyond
22 the phase where radiation induced cancers are the sole
23 concern. We have now in the primary literature, not the
24 great literature, not the public literature, we have the
25 leucemias in children of plant workers in Britain.



1 People who are exposed on the job to far less than the
2 work place standard and in Britain, that's far less than
3 in Canada apparently.

4 None of the less, at those very low
5 exposures, they are transmitting to their children a
6 genetic defect. That is not a case of rapid anti-nuclear
7 types. That is a primary literature example.

8 And we also have the Bier-Fyfe report
9 again, a recent publication, where things like mental
10 retardation in even as unsuitable a group for comparison,
11 the public here say in New Brunswick as the rational
12 survivors, that mental retardation is shown to be
13 responsive to radio exposure down to background levels.
14 There is no... there is clearly no threshold with the
15 data already available from that unusual population.

16 The catalyst I spoke of was a book in the
17 popular literature, "Daily Deceit", I hope you have been
18 aware of it, which used vital statistic data to show that
19 the timing and location of changes in mortality can be
20 correlated with the timing and location of nuclear
21 releases.

22 This is, I think this probably considered
23 to be in the grey literature, the public literature. But
24 the data are compelling if you're used to dealing with
25 bodies of data like that.



1 When you got concurrence in time and
2 place of the events, you've got a very strong
3 correlation, that reason to be concerned, you certainly
4 can't deny the data, you must, you must address it.

5 I don't believe data as recent as some of
6 these things are being... have been part of the AECL risk
7 assessments.

8 Let me try to move on a bit to some of my
9 other notes here.

10 The concept suffers in my... the long
11 term disposal concept suffers from the ... one of the
12 problems it suffers from is the fuel bundle storage for
13 long term and the radioactive waste from reprocessing,
14 stored for long, long terms. What the public has been
15 told is that these dry relatively insoluble pellets that
16 form the radioactive waste inside the spent fuel bundles,
17 will not be exposed to fluids, will not... and so on,
18 cause leaks in the containment vessels and so on.

19 But of course those containment vessels
20 will also contain the highly radioactive, highly caustic
21 products that result from reprocessing spent fuels to
22 extract the plutonium and I don't believe that the num-
23 bers that risk assessment sent in, based on, have looked
24 into additional corrosion problems caused by having those
25 wastes stored in this facility.



1 I think those are, so much more severe
2 than those... then spent fuel bundle problems that they
3 should be the primary concern. The waste, the worst
4 waste that could be stored in this facility is the one I
5 think that the assessment should be made on.

6 I don't think that it is a good
7 philosophy to back fill, within the facility. The worst
8 scenario I could see coming from an accident, a leak,
9 would be people being told "Oh, no, no, no, no, the
10 radioactivity in your drinking water can't be coming from
11 our facility, it must be a natural, a natural thing."

12 I think the storage facility must allow
13 permanent and constant access and monitoring. This may
14 be robotic, it may be in any way at all, but it must
15 allow sampling at the canister and continuous monitoring
16 if that's for 500 years, if that's for 1000 years. That
17 must be built into the system. The philosophy of back
18 filling and forgetting about it is the wrong philosophy,
19 I'm quite convinced of that.

20 A crucial part, a crucial element of the
21 process is the question of trust in the competence of
22 AECL and its engineers in... and its agents, and other
23 agencies in their ability to design and manage a system
24 like this. I don't think that the public is in a
25 position based on past performance, to award to AECL the



1 levels of trust that are required.

2 I'm thinking here in terms of the
3 releases, deliberate releases of trillium and I believe
4 it was Chalk River in the early 80's, when because an
5 emergency reservoir spilled onto the floor, the water got
6 dirty, pumped back in the tank, then they had to clean
7 the tank the best of their expedient solution, was to
8 dump this irradiated heavy water into the river.

9 And this... of the ways that radiation
10 gets... I identify three (3) ways that radiation is
11 released from nuclear facilities.

12 One (1) is design characteristics, the
13 Candu cranks out thirty (30) times more trillium than a
14 light water reactor simply because it's irradiating heavy
15 water, a one step jump to trillium, whereas light water
16 reactors have to first pump the light water to deuterium
17 before trillium.

18 That's a design characteristic. There
19 are just plain accidents. And the third (3rd) one is
20 deliberate releases. I think this tendency to
21 deliberately release as we've seen at Lepreau when they
22 would prefer to continue to function with leaking tubes
23 and releasing low levels of trillium into the
24 environment. They would prefer to do that rather than
25 shut down and fix the problem immediately.



1 Again, on the subject of trust, we would
2 want, we the public would want, we would expect that the
3 agencies dealing with nuclear waste, nuclear materials,
4 would be leading the... leading all industries in their
5 attitude towards safety on the job and in environmental
6 awareness and environmental concerns.

7 We can't for example, have that faith in
8 NB Power, AECL's agent here, if you look at past
9 performance. The recent heavy water contamination of a
10 drinking fountain is a case and point.

11 We ... a few workers have access to heavy
12 water, they should know how dangerous it is. This fellow
13 was able to testify that he didn't know it was that
14 dangerous. Surely their education policies would ...
15 should make everyone who has access, keenly aware of the
16 hazard. He was working on a shift schedule that worsened
17 his job performance rather than helped it.

18 You would think that in their rela-
19 tionships with their employees, NB Power should have been
20 using the state of the art, shift schedules to make sure
21 that their employees work around the clock at the best
22 possible, in the best possible working environment.

23 If they were technically competent, we
24 might trust them more, but again we know here, that the
25 control rods were wired backward, the emergency control



1 rods in Lepreau, at the Lepreau plant were wired
2 backwards for four (4) years.

3 That implies a low level of technical ...
4 a technical error which bring into question the long term
5 competence.

6 We know they operated with the
7 containment building leaking, in violation I think of
8 their license. Again technically, they weren't able to
9 operate at the levels we would expect of them.

10 We have a question of experts versus
11 experts. Again this is the contentious issue thing. The
12 experts on the two sides are so far apart that it's
13 difficult to justify moving ahead, moving ahead with
14 these long terms attempts at solving the waste problem
15 without first trying to pull the experts closer together.

16 One of the things that is kept... kept me
17 going in this is the question that we're all taught
18 about, what a theory is and how you prove and disprove
19 theories. Sometimes a theory will go on for a long
20 period of time, centuries, being an acceptable frame with
21 which to deal with something but will fall apart because
22 of a single, a single fact.

23 A theory that cannot accommodate all
24 facts is not the theory that's appropriate. When you
25 think of the differences between the way the universe is



1 viewed under Copernicus or under Newton or under
2 Einstein, all ways of conceptualizing the problem but
3 single observations can throw out large bodies of
4 knowledge.

5 I'm not sure I've covered all my points
6 but let me just end by saying that if this concept really
7 was safe, if it really was possible to do what is
8 intentioned with this facility, then we wouldn't live in
9 a regulatory framework in which the industries, insurance
10 liability was different from other industries.

11 I think we cannot say that we've got this
12 ... we cannot allow some experts to say we have this
13 under control, it's very straight forward to deal with,
14 when in fact, they're protected from a straightforward
15 liability.

16 I also believe that the best long term
17 storage is not the "put it in the ground and forget it"
18 mode, I went from the facetious it should be in our
19 backyards to actually firmly believing that it should be
20 in our backyards.

21 I think the best place for the long term
22 storage is a combination of where it's generated, I think
23 the long term storage should be very close to Lepreau for
24 Lepreau's fuels and very close to all other plants for
25 their waste, spent wastes.



1 But I also think that in exporting the
2 power from nuclear facilities, we should be exporting
3 some of the wastes. I think the consumers of the fuel
4 must be aware of the hazards that that consumption has
5 created and it's only that awareness which will provide
6 the vigilance needed for the public to continue to push
7 for safety. And again, long term there must be
8 monitoring at the disposal site. The back filling and
9 entombing is entirely the wrong way to go. There must be
10 at least remote sensing to insure the long term integrity
11 of the storage pile.

12 I think I'd like to conclude my remarks
13 there.

14 THE CHAIRMAN: Thank you very much indeed
15 Mr. Sochasky. Despite your modest disclaim, you have
16 indeed pointed to several matters which are of direct
17 relevance to the mandate which is our primary concern
18 here.

19 The one which we have completely draw out
20 is your reminder that if indeed there is to be a central
21 ... there should be a central repository and if it were
22 to take at some stage, the residue, the waste from
23 reprocessed fuel, it would be necessary to have a very
24 good fix on whether that has characteristics different
25 from the irradiated fuel bundle and to be prepared for



1 that.

2 I think that was the point you were
3 putting across throughout your presentation. Are there
4 any questions which members of the panel would like to
5 put to Mr. Sochasky? Dr. Lapierre?

6 DR. LOUIS LAPIERRE: I have one question
7 and it relates to models. You indicated that your work
8 brings you to look at assessment of things and work with
9 statistics...

10 Do you have any opinion on the use of
11 model for predicting long term results such as the way
12 we're looking at, because we're not looking at something
13 that we're going to be able to live through. It's you
14 know, hundreds and thousands of years.

15 Do you have any comments on the
16 reliability of models to ...

17 DR. SOCHASKY: Yes I certainly have some
18 opinion. Let me say that the statistical techniques used
19 which involve the analysis of component failure and the
20 combinations of failures of two (2) components at the
21 same time, and then three (3) components, the building up
22 of risk, was probably... the building up of a probability
23 of failure on the part of a system because of individual
24 components which is being used quite a bit if not solely,
25 was always available to the nuclear industry at the



1 beginning I believe. I think that was the best approach
2 but I share the opinion of ... I happen to have a paper
3 here, I share the opinion of a paper published in 86 in
4 a general nature "Is land and "Lingram" which says we've
5 essentially got enough data now to actually look at
6 experience, look at the rate, actual rates of failure and
7 not worry about, solely on, risks based on predicting
8 from component failures, what an overall failure would
9 be.

10 That... their analysis of in a paper, how
11 many reactor accidents will there be, based on reactor
12 accidents up through August '86 should there was an
13 order of magnitude difference, several orders of
14 magnitude difference in which you predict in the
15 traditional way and what you see when you're looking at
16 experience.

17 So I really do feel that the trust based
18 on assessment should come from, largely from past
19 experience. In summing my answer to your question, yes
20 the model used in the past was necessary, was always
21 available but we have a history now in which we can look
22 at how well those predictions have applied to the real
23 world and in the real world, people are concerned much
24 more.

25 DR. LOUIS LAPIERRE: Would it be possible



1 to have a copy of that reference.

2 MR. SOCHASKY: I'll write down the
3 reference for myself and leave you the copy.

4 DR. LOUIS LAPIERRE: Thank you.

5 THE CHAIRMAN: Thank you, we'd want to
6 include that I think in the transcript proceedings so
7 we'll have it recorded in there and get it from you
8 afterwards, thank you.

9 MR. SOCHASKY: In response to his
10 question, let me mention one more point that I forgot on
11 the question of the technology and prediction.

12 The predictions of the integrity of the
13 storage vessels are, I presume, are from the same body of
14 knowledge, the same body of experts that predicted the
15 integrity of the fuel bundles.

16 We know that they are failing at a rate
17 far faster than predicted. It is hard to accept the
18 estimates of integrity of the storage canisters in the
19 facility you're analyzing as being representative, when
20 the on the estimates about the fuel bundles were not.

21 THE CHAIRMAN: Ms. Roy?

22 MS. LOUISE ROY: Mr. Sochasky, I would
23 like to know if you would have some suggestion and what
24 could be a set of good indicators of significance for the
25 public to assess the risk for human beings or for the



1 environment, related to the management of the waste. Do
2 you have some comments or suggestions?

3 MR. SOCHASKY: Yes, I think I could talk
4 for a few minutes on that. One of the problems we have
5 with our vital statistic data, the data on births and
6 deaths and what not, is that I believe it was designed to
7 help hospital Managers purchase equipment for coming
8 years, trends in diseases to be reflected and budgeting
9 patterns for the coming years.

10 And I think that's what has dominated the
11 design, the gathering of vital statistics about human
12 population.

13 I think as part of the overall concern
14 about environmental effects on people, not just
15 radioactive waste but all environmental hazards whether
16 natural or man made should be studied with a look at
17 revising the methods of gathering vital statistics about
18 patients and births and mortalities.

19 I think we should look seriously at
20 trying to know with each mortality, with each serious
21 illness, where somebody was born, where they contracted
22 the diseases, how long they were in a certain area.

23 I'm pushed to that, that is an important
24 concern by the... this book published in April "Deadly,
25 a See", where the vital statistics, monthly vital



1 statistics in the US were computerized by a private
2 individual, private firm and used to demonstrate this
3 correlation in timing and location, of abrupt changes in
4 respiratory mortality on natal mortalities and the
5 correlation of those with time and place of accidents.

6 When I say experts are far apart, this
7 sort of analysis lead to experts saying that... well I'm
8 going to be ... I may be ... orders of magnitude output
9 ... either 3,000 or 50,000 deaths as result of Three
10 Miles Island, if you looked at the mortality rates in the
11 very young, the newborn and those with respiratory
12 challenges whereas experts on the other side say there
13 were no mortalities associated with Three Miles Island.

14 The book is an interesting read, I don't
15 subscribe to all of the things that it throws out as
16 correlations but where it talks about the correlations in
17 time and place, it is very compelling and it says we have
18 to gather data in a better way.

19 That's part of my answer to your
20 question, we do have to gather data I think, in a way
21 that allows us to say where people were when they caught,
22 when they were challenged by environmental problems.

23 Another part of the answer is we can
24 actually if we wanted go out and look at the radiation
25 exposure people have had historically is we are prepared



1 to take a tooth fairy approach.

2 And I'm... what I mean is that teeth are
3 a good record of the exposure at the time the teeth were
4 laid down. Teeth are a dormant tissue. Not much is
5 going on in teeth, once they are formed in the infant or
6 the foetus' body.

7 They actually are a time capsule.
8 Another potential time capsule would be the inner ear
9 bones. In fish, the inner ear bones are a very important
10 economic way of ... an economic way of assessing what's
11 going on with fish populations.

12 Once something is deposited in those
13 structures, it is not metabolized. All that happens is
14 a little more is added in another layer, or they are
15 absolutely dormant.

16 If we wanted, we could assist and enlist
17 the assistance of the fairy god... of the tooth fairy and
18 assessments could be made on the levels of radioactive
19 substances, Strontium 90, if that was the case, Trillium,
20 which although it is washed out of all of other tissues,
21 would remain in teeth and earbones and in the ova of
22 those people who were infants at the time of their ...
23 sorry, foetus at the time of their exposure.

24 The ova like the teeth and like the
25 earbones are dormant tissues and even trillium is not



1 flushed out of, out the tissue until the ovum becomes
2 metabolically active.

3 So where there are tissues, one could go
4 to and at least in autopsies, and get an idea of
5 exposure.

6 I used to phrase, I went to school during
7 the time when we talked of elder 50's and indicator
8 species and what not. I think one of the best indicator
9 species for nuclear waste may well be the newborn human.

10 The hazards of low level waste are not
11 cancerous necessarily. They are things that we've not
12 been told to expect about and the gathering of vital
13 statistics that allow the geographic locations and timing
14 could be identified in the history of patients, it would
15 be very important.

16 THE CHAIRMAN: Dr. Fyfe?

17 DR. WILLIAM FYFE: Just to get something
18 and I think I understood, you seem to be saying that you
19 thought and we've heard this from many people that those
20 who use nuclear power should store the waste, that we
21 should not look for remote sites?

22 MR. SOCHASKY: That is the view I've come
23 to. I have... I think at one point, I believe that
24 remote out of sight out of mind was really the way to go.
25 But I now feel absolutely that the best long term



1 solution is vigilance and the best way to have vigilance
2 is local.

3 THE CHAIRMAN: Dr. Wilson?

4 DR. LOIS WILSON: Thank you, you talked
5 about the integrity of models and the short comes of
6 models and so on. Do you have any thoughts on this one.
7 I mean, you might not have but, do you have any thoughts
8 on the integrity of the repository itself?

9 I mean the possibility of doing it
10 generically as opposed to the opinion of some people that
11 want you to spur the rock, you have changed the situation
12 so that in fact, unless it's a specific site that you do
13 the research on, the generic ... is impossible? Do you
14 have any thoughts on that?

15 MR. SOCHASKY: I'm not sure I understand
16 the question. The acoustics are bad here.

17 DR. LOIS WILSON: I know, I had trouble
18 to hear you too. There are some who say that they... the
19 concept we're working on...

20 THE CHAIRMAN: We can't get a transcript
21 without the mikes just take it slowly.

22 DR. LOIS WILSON: Alright, I'll sit back
23 maybe. The concept we're looking at is disposal in the
24 rock of the "Laurentian shield". And there are some who
25 say that it's impossible the research can be done.



1 But in fact, it has to be done in a
2 specific site to get the data we're needing. Because the
3 very exploration and as soon as, as soon as you disturb
4 the present rock formations, you're into something
5 different. And so, each site you do may be different.
6 I mean, do you have any comments on that?

7 MR. SOCHASKY: I would accept that in
8 general, it is possible that we could come up with a
9 storage facility that would be generic and suitable. But
10 I don't think this one is the one.

11 I think this one requires integrity. I
12 think the concept of unfractured rock and back filling
13 and entombing requires a particular type of situations to
14 apply and I think that it's not the generic one that we
15 would want. It's certainly not what I would want to see
16 in New Brunswick, although I would want to see long term
17 storage here.

18 DR. LOIS WILSON: Well do you have any...
19 what makes you say that?

20 MR. SOCHASKY: Well I know that the...
21 from conversation with others that the... although New
22 Brunswick is one of the provinces with shield rock and so
23 one of the provinces that would be considered on that
24 basis alone for having this facility.

25 Apparently, the bedrock here, the shield



1 rocks here are hard to fracture. And that means that
2 that... for this particular concept, the movement of
3 ground water is more likely here than elsewhere.

4 DR. LOIS WILSON: Um-hum.

5 MR. SOCHASKY: And because this facility
6 is not monitored as... in its concept, present concept
7 stage, that .. that would make me say that that concept
8 is not suitable here.

9 If this would... if the concept would
10 arise to allow monitoring say, no back filling but little
11 tracks and routes for robots to run off along, and do
12 sampling on, then perhaps New Brunswick would be quite
13 suitable.

14 DR. LOIS WILSON: Thank you.

15 THE CHAIRMAN: Any further questions?
16 If not, I thank you very much indeed Dr. Sochasky for
17 your very thoughtful presentation to us this morning.

18 MR. SOCHASKY: Thank you.

19 ---Mr. Sochasky withdraws.

20 THE CHAIRMAN: The next person I have on
21 my list is Mary Lou Harley, who kindly agreed to come
22 back today, arrived yesterday when we had closed in early
23 session and I'm very grateful that she could come back
24 for this morning's session.

25 Miss Harley?



1 PRESENTATION BY MARY LOU HARLEY:

2 I apologize to previous speakers for
3 coughing through your presentation. I'm a part-time
4 lecturer at UNBSJ and I seem to have Dr. Betts' cold.

5 My background is a Phd in chemistry. But
6 at the time that I did my degree, very little nuclear
7 chemistry was done. So since my degree, I have been
8 doing some education for myself so that I can teach
9 nuclear chemistry to the health services group in the
10 course that I teach.

11 The course that I teach is a very broad
12 overview and so my background in nuclear chemistry is not
13 as detailed as I would like it to be. Some of the
14 comments and issues that I may have addressed in my
15 presentation may be outside of your mandate since I was
16 not fully aware of the limitations of your mandate. But
17 I would like to take from my presentation, what is
18 appropriate.

19 The management and nuclear waste has to
20 mean more than monitored storage containment and
21 permanent disposal. Storage must only be an interim step
22 with an intention to detoxify the radioactive waste and
23 recycle fuel bundles.

24 We have always buried some of our waste
25 and when the toxicity of some waste was realized, we



1 buried those deeper where they were put into containers
2 which we were reassured would last long enough.

3 We have come to know that disposal or
4 long term storage is not the answer to toxic waste
5 management. Used fuel bundles from nuclear power plants
6 are a most toxic waste for which the plan of permanent
7 disposal is of "put it in a better container and bury it
8 even deeper" type of solution.

9 From household items to industrial
10 sources, the concept of reuse, recycle, reduce and
11 detoxify, is being applied to waste management.
12 Responsibility for detoxification of the waste is to lie
13 in the hands of the producer at the time of production.
14 And not left as a burden of future generations.

15 These same criteria must apply to
16 management of nuclear fuel waste. Some issues that
17 should be included in the guidelines for the preparation
18 of an environmental impact statement on the nuclear fuel
19 waste management are listed, together with questions and
20 points related to nuclear fuel waste.

21 The first (1st) issue I have is with
22 respect to neutrino and anti neutrino emission. Each
23 beta particle emission is accompanied by the emission of
24 an anti neutrino. Or in the case of positron emission by
25 a neutrino. The neutrino and anti neutrino are stable,



1 uncharged elementary particles which pass through all
2 barrier systems used in the storage of nuclear waste.

3 Therefore, stored nuclear waste is a
4 source of continuous relatively high level anti neutrino
5 emission. Unlike anything we have been exposed to on
6 earth before.

7 What are the effects of this long term
8 exposure to the continuous anti neutrino emissions? What
9 are the effects of concentrating anti neutrino emissions
10 in a large site disposal area.

11 What research is being supported in this
12 area, who is doing it and how much funding is targeted
13 for it. If due to the lack of previous experience and
14 little research, the answer is, there are no known
15 effects, is that being interpreted as there are no
16 effects?

17 A certain point of scientific priority on
18 detoxification. Natural detoxification of radioactive
19 materials is a function of time where each radio isotope
20 will disintegrate as described by its activity, half
21 life, mode of decay and an energy spectrum of the
22 radiation.

23 Involvement in a nuclear chemical
24 reaction is the present mechanism we have to alter
25 radioactive isotopes and as yet, we have very poor



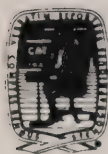
1 control over the resulted reaction.

2 There is an urgent need for fundamental
3 research to gain a fuller understanding of the atomic
4 nucleus. To better utilize this energy potential without
5 such toxic waste hazards and to develop the technology to
6 detoxify the presently generated radioactive isotopes
7 through stabilization of the radioactive nuclei.

8 What research at the fundamental level of
9 investigation on the nuclei is being supported? Is there
10 a scientific priority on this matter in the mind of any
11 parties involved in the management plan?

12 What funding is to be available for
13 future studies on the structures of the nucleus,
14 elementary particles that are the building blocks of the
15 neutrons and protons. The binding forces and energy le-
16 vels of the nuclear particles, stabilization of
17 radioactive nuclei, controlled involvement of radioactive
18 waste and further nuclear reactions to lead to lower
19 level of radioactive waste and detoxification of
20 radioactive waste.

21 The third (3rd) point is the Canadian
22 nuclear fuel waste management program. It appears that
23 this ten (10) years program of Canada's nuclear fuel
24 waste management has concentrated on the disposal of
25 radioactive waste, particularly the permanent disposal



1 option.

2 From criteria and processes for selecting
3 the actual disposal site, to interim storage and
4 transporting used fuel with no apparent inclusion of
5 methods for detoxification or the recycling of the used
6 fuel bundles.

7 Proposals which utilize a multibarrier
8 system in hopes of avoiding ground waters seepage into
9 the rock burial site, appear to make it very difficult to
10 access this material for future detoxification.

11 Encasement of the waste in corrosion
12 resistant, not corrosion proof containers, to be placed
13 in disposal rooms, 500 to 1000 meters below the surface
14 in the Canadian shield, surrounded by compacted clay with
15 vaults, to be backfilled and sealed, is in the end, still
16 simply burying our toxic garbage for future generations.

17 If this management program, a bury and
18 seal storage where the materials will not be accessible
19 for treatment, to be detoxified or recycled when our
20 science brings these technologies to practical
21 application? Does the Federal Government, AECL or any
22 other party involved in nuclear waste management, see
23 detoxification as a technology that must be available
24 before more high level radioactive waste is produced?

25 How much money has been spent by Canada on supporting



1 nuclear research of the fundamental level of elementary
2 particle investigations and nuclear stability studies or
3 any work related to reduce toxicity of the used fuel bun-
4 dles over this same last year period, when Canada has
5 been working to develop a nuclear fuel waste management
6 program?

7 The fourth (4th) point is the actual
8 detoxification of the high level radioactive waste and
9 recycling possibilities for the used fuel bundles.

10 High level radioactive waste namely the
11 used fuel bundles accounts for about 99% of the nuclear
12 waste. Monitored storage must be regarded as the interim
13 step while efforts are concentrated on developing proper
14 management techniques which must include rapid
15 detoxification of the radioactive waste and possible
16 recycling of the fuel bundle.

17 Exact composition of the high level
18 radioactive waste should be documented for ultimate rapid
19 detoxification program and possible recycling. The
20 management program must address each radioactive isotope
21 present as to concentration, type of radiation produced,
22 activity, half life etc, which be a demanding job since
23 there is considerable variation in the possible products
24 of a nuclear fission reaction.

25 This variation in the composition of the



1 radioactive components in the used fuel bundles must be
2 documented to the best of our present ability to
3 facilitate detoxification and future recycling. The
4 radioactive waste from all the nuclear power plants have
5 been under monitored storage and therefore, there must be
6 data on the high level nuclear fuel waste which is
7 presently contained. What is this present documentation
8 available on each used fuel bundle? Does the data
9 include composition of world activity, modes, decay and
10 decay energies, alpha and beta particle energies,
11 particle intensities, gamma energies and gamma
12 intensities and the measure of biological affect of
13 exposure to the ionizing radiation from this waste?

14 What steps need to be taken to insure
15 that such full documentation is obtained and maintained?
16 What is the present status and the possibilities of
17 recycling the used fuel bundles as a means of reducing
18 the quantity of high level nuclear fuel waste?

19 Is there any scientific information
20 available related to detoxification of used fuel bundle?
21 And what research is being supported in these areas? Who
22 is doing it and how much funding is targeted for it?

23 A fifth (5th) point is Canada as a
24 nuclear fuel waste dump site. The management of nuclear
25 fuel waste is a global issue. Countries to whom Canada



1 has sold Candu reactors look to Canada for guidance and
2 the result of waste management.

3 If Canada does not lead the way in proper
4 management program involving accelerated detoxification
5 and the Canadian shield permanent storage program goes
6 ahead, countries that have no stable, suitable geological
7 formations for vault disposal, or who have insufficient
8 funds available to construct their own storage, may want
9 to dump their waste in Canada. If the Canadian shield
10 permanent storage goes ahead, will nuclear waste be
11 restricted to Canadian origin or all Candu reactors or
12 will nuclear waste be accepted from other nuclear power
13 stations around the world?

14 The sixth (6th) point is transportation
15 of nuclear fuel waste. From on site storage to central
16 storage involves transportation and all modes of
17 transportation have had their accidents and tragedies.

18 What mode of transportation is being
19 proposed, using what containment arrangements?

20 The seventh (7th) point is security. At
21 times of war and domestic instability, these nuclear fuel
22 wastes stored or in transit could be targets for an
23 enemy. What security systems are planned?

24 The eight (8th) point is public percep-
25 tion of the safety and acceptability of the nuclear fuel



1 waste management program.

2 The Government is seen to be involved in
3 the development and marketing of Candu reactors.

4 There is a public perception that the
5 government and AECL cannot make an unbiased decision and
6 that immediate economic factors interfere with a
7 realistic view of the full dangers of the waste.

8 What action will the government of AECL
9 take in response to the findings and the recommendations
10 of this panel?

11 Removal, on site storage and final
12 management costs are already included in the rates we
13 pay. So it appears that there has already been an
14 ultimate plan decided when the rates were established.

15 What was that management plan in which
16 the cost estimates were made for inclusion in power
17 rates?

18 The Canadian Nuclear Association fact
19 sheet entitled "Is used nuclear fuel managed safely"
20 states:

21 "In the long term, the potential hazards
22 of the components of used nuclear fuel
23 is similar to many non radioactive toxic
24 materials. They can do no harm unless
25 they are ingested."



1 Such statements undermine the public's
2 confidence in the truthfulness of agencies which are
3 claiming to be educating the public.

4 Will there be a high priority on public
5 education rather than propaganda distribution so that
6 people will understand the basic, physical and chemical
7 facts, to be able to read literature on nuclear issues
8 and separate the facts from the misleading and the false
9 information.

10 Point number nine (9) is nuclear fuel
11 waste compared to waste from other energy sources.
12 Nuclear power does not include... excuse me, nuclear
13 power does not increase the carbon dioxide levels. It
14 does not require flooding. It does not produce acidic
15 gaseous emissions and it does produce relatively small
16 amounts of waste.

17 But the toxicity of those wastes has to
18 be addressed. The nuclear fuel waste is the most toxic
19 waste that the human race has ever produced. The
20 consequences of this waste have not been realized and our
21 records with respect to foreseen problems with waste is
22 extremely poor.

23 For example, the production of carbon
24 dioxide previously seen as a completely safe waste, a
25 natural component of air, a basic plant food, has proved



1 to have dire consequences. How much greater the risk of
2 calamitous results when the waste is known to be so
3 extremely toxic.

4 In conclusion, we cannot write a balance
5 sheet of economics when the waste threatens life, but we
6 have been doing it and suffering the repercussions one
7 generation after another.

8 We cannot solve our problems with carbon
9 dioxide production by turning to an energy source because
10 it does not produce carbon dioxide, and try to make light
11 of the extremely toxic wastes it does produce.

12 And as with all our wastes, we must have
13 a way to fit nuclear fuel waste into the reuse, recycle,
14 reduce and detoxification management system.

15 The extremely long term storage of
16 nuclear waste is a disaster waiting to happen. Our
17 recent experience and historical record with respect
18 foreseeing problems with waste is poor.

19 It is unreasonable to assume that there
20 will never be an accident, misjudgment, error or
21 container deterioration or that our present science is
22 sufficient to predict the consequences of thousand of
23 years of storage of radioactive wastes.

24 Detoxification procedures are a necessity
25 to manage the waste already produced. No further nuclear



1 power plant should be put into operation and no increase
2 in rate of waste production from present plants should be
3 permitted until true waste management which involves
4 detoxification is developed.

5 The economics of such decisions may be
6 seen by some as unacceptable. But priority has to be
7 placed on the funding for the research which could lead
8 to the detoxification of this waste.

9 It has been stated by the agencies
10 involved that the money for proper management of this
11 waste has been taken into account in the rates that we
12 have been paying. And proper management means respon-
13 sibility for detoxification must lie in the hands of the
14 producer not on the shoulders of future generations.

15 If production of any more used fuel
16 bundles were banned today, we'd still have to manage what
17 we have on site now.

18 While the quantities are small, we must
19 utilize management concepts to secure safe storage which
20 will permit future access to the high level nuclear waste
21 for recycling and future detoxification.

22 If the scientific community does not see
23 detoxification as a practical technology in the near
24 future, we simply have to stop producing this waste which
25 we never should have started producing in the first (1st)



1 place until we had a better understanding of the physics
2 and chemistry of the atomic nucleus, to the point where
3 recycling and detoxification procedures were available.
4 Thank you.

5 THE CHAIRMAN: Thank you very much
6 indeed, Dr. Harley for that most thoughtful and well
7 organized presentation. Thank you also for coming out
8 when you're feeling somewhat less than 100%, in order to
9 help us.

10 You undoubtedly put forward a number of
11 points there which are very directly relevant to the task
12 we're facing. Thank you for that.

13 Are there any questions of clarification
14 which members of the panel would like to put to Dr.
15 Harley?

16 It appears that your presentation was
17 very clear then to all of us and I thank you very much
18 indeed for coming here this morning.

19 DR. HARLEY: Thank you.
20 ---Dr. Harley withdraws.

21 THE CHAIRMAN: May I inquire now whether
22 there is anyone else present who would like to make a
23 presentation while we are here in this final one of three
24 sessions in St John? If there are not, it remains only
25 for me to thank you very much for coming out this



1 morning. Particular thanks to those who made
2 presentations to us. Your remarks have been listened to
3 most carefully and we will be weighing them equally
4 carefully as we move ahead to the task of establishing
5 the guidelines for the Environmental Impact Statement.

6 Thank you very much indeed.

7
8 End of session in St John.
9
10

11
12 I, YVAN G. LEMAY, the undersigned
13 Official Court Reporter, hereby certify
14 the foregoing is a true and faithful
15 transcript of these hearings taken by
16 means of stenomask.

Yvan Lemay

17 YVAN G. LEMAY,
18 Official Court
19 Reporter
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Fredericton Motor Inn
Fredericton, New brunswick

Date: Tuesday, November 6, 1990
Mardi le 06 novembre 1990

Volume: 8

(Evening Session)

B E F O R E / D E V A N T :

MR. BLAIR SEABORN	Chairman/President
DR. LOIS WILSON	Member/Membre
DR. LOUIS LAPIERRE	Member/Membre
DR. WILLIAM FYFE	Member/Membre
MR. PIETER van VLIET	Member/Membre

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ON NUCLEAR FUEL WASTE
MANAGEMENT

BUREAU FÉDÉRAL D'EXAMEN
DES ÉVALUATIONS
ENVIRONNEMENTALES
DE LA GESTION DES DÉCHETS
DE COMBUSTIBLES NUCLÉAIRES

SCOPING MEETING
RÉUNIONS DE DÉTERMINATION DE L'IMPORTANCE DES PROBLEMES

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1990
07:00 p.m./19.00 heures

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(i)

A P P E A R A N C E S

MR. ROBERT YOUNG

PROJECT PLOUGHSHARES

MR. ALLISON CONNELL

PRIVATE CITIZEN

MR. MARK CONNELL

NDP ASSOCIATION

SUSSEX SOCIETY OF PUBLIC
INTEREST

MR. STANTON FRIEDMAN

SCIENCE AND TECHNOLOGY
INCORPORATED



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1 ---Upon commencing at 7:00 p.m.

2 THE CHAIRMAN: Good evening ladies and
3 gentlemen, and welcome to this first in Fredericton
4 scoping meeting which is being held on the
5 Environmental Assessment Panel charged with looking at
6 the Nuclear Fuel Waste Management and Disposal Concept.
7 The Panel was appointed by the Minister of the
8 Environment in October of 1989.

9 The meeting here in Fredericton will be
10 conducted in English, but you will be able to listen to
11 the proceedings of the meeting in French through
12 headsets available at the back of the room, there's a
13 translation service. I should go without saying as
14 well that if anyone wishes to make a presentation in
15 French, he or she will be very welcome to do so.

16 Could I introduce the members of the Panel
17 who are with me this evening. At my left at your right
18 arm of the table, Dr. Louis Lapierre, a professor in
19 the Department of Biology at the University of Moncton
20 and Chairman of the Environmental Council of New
21 Brunswick, no doubt known to a number of you already.

22 To my immediate left, Mr. Pieter Van Vliet
23 from Regina, a mechanical engineer and a member of the
24 Senate of the University of Regina.

25 To my immediate right, Dr. Lois Wilson of



1 Toronto, President of the World Council of Churches and
2 Co-Director of the Ecumenical Forum of Canada in
3 Toronto. And at the far end of the table although to
4 my right is Dr. William Fyfe, professor in the
5 Department of Geology and Dean of the Faculty of
6 Science at the University of Western Ontario in London.

7 There are two (2) members of our Panel who
8 unfortunately were unable to be with us for this
9 evening session. My name is Blair Seaborn. I am
10 Chairman of the Panel, I reside in Ottawa. I'm
11 retired, but I served previously as Deputy Minister of
12 the Environment and Canadian Chairman of the
13 International Joint Commission.

14 I would stress that all of us, all the
15 members of the Panel are from the private sector. We
16 have been appointed to this position by the Minister of
17 the Environment, but we are expected to ... at the end
18 of the whole process, to present a report to him which
19 will be completely independent of any government
20 policies, and will contain, we hope, the best judgments
21 which we, as individuals and in our personal and
22 professional capacity, can bring to bear upon this
23 complex subject.

24 We have with us also on the Panel
25 Secretariat, some of the secretariat, and I would like



1 to introduce them. Mr. Bob Greyell who is at the table
2 to my left. And at the back of the room Ms. Susan
3 Toller, and from time to time, at least she's here at
4 the moment, Susan Flanagan two (2) staff members who
5 are ... all of whom are there to assist you and to
6 provide you with any information about these
7 proceedings which you might wish.

8 The review is being conducted in
9 accordance with the federal Environmental Assessment
10 and Review Process (EARP). This process ensures that
11 the environmental implications of proposals for which
12 the federal government has decision-making authority
13 are fully considered as early in the planning process
14 as possible, before irrevocable decisions are taken. I
15 hope that some of you may have had the opportunity to
16 receive information on this review process and on the
17 proposal of Atomic Energy of Canada Ltd. (AECL) at the
18 open houses which were held in May and June of this
19 year.

20 The Panel has been asked in part, to
21 examine the nuclear fuel waste management and disposal
22 concept, which is a proposal for the permanent disposal
23 of used nuclear fuel deep in the granitic rock of the
24 Canadian shield. This proposal would see the used fuel
25 sealed inside corrosion-resistant containers placed in



1 holes drilled in the floor of a room inside a disposal
2 vault. The vault would in some ways resemble a deep
3 mine and would contain the used fuel in an area of
4 approximately four (4) square kilometres.

5 I would like to say a few words about the
6 Panel's mandate. The terms of reference state that the
7 Panel is to review the safety and acceptability of the
8 concept which I've just described for geological
9 disposal of nuclear fuel wastes in Canada, as proposed
10 by AECL. But in addition to the AECL proposal, we
11 shall examine a broad range of nuclear fuel waste
12 management issues, including long-term management,
13 transport and, environmental, social, and economic
14 effects. We shall look at approaches to nuclear fuel
15 waste management and disposal being developed elsewhere
16 in the world. Since site selection will not occur
17 until a disposal concept has been accepted as safe, the
18 Panel will not consider any specifics sites, but will
19 review the potential availability of them and the
20 methodology and criteria required for site selection.

21 Let me say a few words also about what is
22 not in the Panel's mandate, and will not be addressed
23 in this review:

- 24 . the energy policies of Canada and the provinces;
25 . the role of nuclear energy within these policies,



1 including the construction, operation and safety
2 of new or existing nuclear power plants;
3 . fuel reprocessing as an energy policy; and
4 . military applications of nuclear technology.
5 All of these are excluded from our mandate.

6 Let me make it clear, however, that the
7 members of the Panel are very much aware of the broader
8 concerns related to the use of nuclear materials and
9 the use of nuclear power for the generation of
10 electricity. The Panel has been urging a broader
11 review of the comparative environmental implications of
12 the various methods of generating electricity. And I
13 am pleased to be able to report that some steps have
14 now been taken to get such review under way, I hope it
15 will come very soon. Specifically proposed terms of
16 reference for such a review had been sent out by the
17 Federal Government for comment by the provinces and by
18 a number of interest groups, and the department of
19 Energy Mines and Resources is now awaiting comments
20 from those who are being consulted before making firm
21 decisions on the terms of reference.

22 The purpose of the scoping meetings is to
23 allow participants to identify issues that need to be
24 addressed in the environmental impact statement that
25 will be prepared by AECL. The Panel is not requesting



1 the presentation of opinions on the substance of the
2 disposal concept at this time. Public hearings will be
3 held later to discuss whether AECL's proposal is
4 acceptable or not. Scoping meetings enable
5 participants to assist the Panel in identifying issues
6 that are of concern and questions which need answers.

7 Following this series of meetings the
8 Panel will prepare draft guidelines for the preparation
9 of the Environmental Impact Statement. We shall invite
10 public comments on these draft guidelines over a period
11 of at least thirty (30) days. After consideration of
12 these comments, the Panel will finalize the guidelines
13 and issue them and affect his instructions to AECL.
14 AECL is expected to take somewhere I should think
15 between a year and a year and a half to prepare its
16 complete Environmental Impact Statement and to submit
17 it to the Panel. Once that is done, the document will
18 be available for a ninety (90) days public review, at
19 least ninety (90) days, possibly more.

20 To assist in the evaluation of the
21 scientific and technical matters, a Scientific Review
22 Group of distinguished independent experts has been
23 established by the Panel to examine the safety and the
24 scientific acceptability of AECL's disposal concept. A
25 report of their findings and recommendations will be



1 submitted to the Panel, who will in turn, distribute
2 that to the public.

3 Once the Panel is satisfied that AECL has
4 addressed satisfactorily all the items identified in
5 the guidelines, we will be ready to hold public
6 hearings. Participants will be asked to discuss the
7 acceptability of AECL's disposal concept in detail at
8 this stage of the review. The Panel will consider all
9 comments submitted to it and at the end of the process,
10 will prepare its report to the Ministers of Environment
11 and of Energy, Mines and Resources.

12 The present scoping meetings will be
13 conducted according to the meeting procedures published
14 on August the 24, 1990. The Panel would appreciate it
15 if review participants would restrict themselves to the
16 identification of issues within the Panel's mandate. I
17 would reiterate that those registered to speak attempt
18 to summarize their concerns in fifteen (15) minutes,
19 unless they have previously requested an additional ten
20 (10). The Panel will pay equal attention to written
21 and to oral comments.

22 The participants who have registered in
23 advance -- and there are number of them both for today
24 and tomorrow here in Fredericton -- will be asked to
25 present their views to the Panel. And I hope you will



1 allow us to put certain questions for clarification
2 following each of those presentations. Anyone who
3 would like to make a presentation to the Panel, but has
4 not yet registered, may speak to any of the members of
5 the Panel's Secretariat, either now or at the coffee
6 break which I think will take place part way through
7 this meeting. We will do our best to accommodate those
8 who have not registered, but of course this may depend
9 upon the time remaining at the end of the meeting.

10 Court reporters are here to record the
11 proceedings of each meeting and transcripts will be
12 made available to designated libraries. A compilation
13 of written submissions will also be available from the
14 Federal Environmental Assessment Review Office in
15 Ottawa.

16 The Panel will accept written submissions
17 identifying issues and concerns up to the end of this
18 month up to and including November 30th, 1990.

19 With this, by way of introduction to our
20 sessions here in Fredericton, I'd like to call on the
21 first of the participants for this evening session and
22 that is Robert Young who will be making a presentation
23 of behalf of Project Ploughshares. Mr. Young, you can
24 come up here and then we can all participate in what
25 you have to say.



1 REPRESENTATION BY MR. ROBERT YOUNG:

2 Mr. Chairman, members of the Panel, I am
3 the guy that volunteered several months ago to make
4 this presentation for the concerned people in project
5 ploughshares. I represent Project Ploughshares in
6 Fredericton. We are a national organization supported
7 by churches. For this reason our comments begin with a
8 Biblical quote.

9 "Suppose one of you wants to build a
10 tower, will he not first sit down and
11 estimate the cost to see if he has enough
12 money to complete it? For if he lays the
13 foundation and is not able to finish it,
14 everyone who sees it will ridicule him
15 saying "this fellow began to build and was
16 not able to finish". That's from Luke 14.

17 Also to begin, another quote, this from a speech by
18 Einstein to the National Commission of Nuclear
19 Scientists in 1946. Einstein was, of course, father of
20 the atom. His invention had been used the year before
21 by military/industrial/political complex to destroy two
22 Japanese cities. He said this:

23 "The release of atom power has changed
24 everything except our way of human
25 thinking and thus we are being driven



1 unarmed toward a catastrophe. The
2 solution to this problem lies in the heart
3 of humankind".

4 Based on these quotes we wish to comment on several
5 areas as indicated by the Chairman.

6 Innovative technologies. Permanent
7 disposal and long term storage. We must face the
8 reality of life. Only biologically safe and/or useful
9 substances should result from the use of any mineral or
10 chemical or from a generation of power from such
11 substances. Including fossil fuel use. It if is not
12 biologic it is not human. We in New Brunswick have
13 what is called Sustainable Development Studies going.
14 Hearings have been held and public input is constantly
15 being requested. It is one of the programs based on
16 the Bruntland report. It addresses human survival.
17 Nuclear waste disposal must not conflict with
18 sustainable development by producing harmful by-
19 products or taking tax moneys needed to correct the
20 errors of past developments which threaten our
21 existence with the pollution they have created.

22 Transportation of wastes. After watching
23 TV adds telling us nuclear power is the way to go
24 because it does not pollute like fossil fuels we think
25 nuclear institutions should not use internal combustion



1 engine powered trucks. In fact, nuclear supporters
2 like investors, engineers, workers, administration and
3 especially politicians who direct tax money to the
4 technology, should show confidence in that statement by
5 refusing to use automobiles, airplanes and busses.
6 They should walk, bicycle and use canoes.

7 The implications / Social. The whole idea
8 that some well educated human beings build nuclear
9 plants and the trust people like me and you to find a
10 solution to such a serious problem as nuclear waste
11 disposal puts an awful lot of faith in the average
12 human mind. What are we teaching ourselves and our
13 children? We are teaching that it's Ok to drive down a
14 busy street at 150 Km per hour because if something
15 suddenly appears in front of you somebody in the
16 vehicle will know what to do. It's Okay to take
17 drugs -- science will find a cure. And if we have a
18 nuclear war some people will survive to start a new
19 civilization. By having to ask all the brains of all
20 the people for ideas on what to do when we face deadly
21 catastrophes created by the actions of a few, we
22 destroy our collective humanness.

23 . Environmental implications are even more
24 dangerous to man than fossil fuel wastes. The nuclear
25 waste disposal system must take seriously the lesson of



1 fossil fuels which were widely accepted for hundred of
2 years and only in the past twenty (20) or thirty (30)
3 have we come to identify problems. Problems which
4 threaten our water, ozone layer, climate, breathing
5 apparatus and economic health. Perhaps scientists can
6 join the two (2) waste problems, fossil and nuclear,
7 and find a solution to both -- as tax-payers we would
8 love to see institutions, especially power
9 institutions, work together.

10 Economic implications. When is human kind
11 going to find or invent something to help people? We
12 see hunger in communities made rich by oil wells.
13 Luxury lives beside poverty and is especially
14 noticeable where fossil fuels and electric energy are
15 available. Would the people in the nuclear industry be
16 willing to work for minimum wage, or we could even
17 offer more than that -- we could offer to pay them what
18 our own government calls the poverty line, until an
19 acceptable solution is found for their waste problem?
20 One that is acceptable to taxpayers who even now face a
21 new tax called the GST.

22 Future generations. My generation has
23 been burdened with the problems of how to dispose of
24 the chemicals used in World War One and World War Two.
25 Burdened with the costs of wars. With the problem of



1 political promises of no more war given after two (2)
2 World Wars. Even today the United Nations is
3 manipulated by superpowers who stand like spoiled
4 children behind the nuclear arsenals. Behind expensive
5 fossil fuel using armies which Einsteins' atom made
6 obsolete -- Nations can now defend themselves with
7 their scientists nuclear bombs and their engineers
8 intercontinental missiles.

9 For shame on any generation to pass on a
10 legacy of polluted air, water and land to its children.
11 To pass on a legacy of killing people to decide on
12 superiority rather than ways of reaching consensus by
13 dialogue and agreement and keeping promises like using
14 the United Nations to settle problems between people,
15 to pass on waste which will be a problem to hundreds
16 (100+) of generations of descendants.

17 Specific site. Our record in finding
18 waste sites for anything is terrible. Few places have
19 not fought over where to put their community dump. The
20 Innu fight the Department of National Defense in
21 Labrador because of the low level military flights over
22 their land from the Goose Bay military air base. In
23 radiation terms people, especially mothers who had
24 babies drinking cows milk containing strontium 90 which
25 came from air testing of nuclear weapons in the 1960's,



1 had their fears reinforced by the Chernobyl and three
2 miles island disasters that radiation is spread world
3 wide after an accident in days if not hours. Specific
4 site then, must be acceptable to the people of the
5 planet. The Planets water, air and what we do on land
6 are now common property, common concern and common
7 responsibility. NIMBY, Not In My Back Yard, is our
8 acronym for where to dispose of solid waste generated
9 in communities. It is called that because we mistrust
10 industry and politics. Now, because of the serious
11 widespread effects of fossil and nuclear fuel pollution
12 it is "NOPE" -- Not On Planet Earth.

13 Other alternatives. In Fredericton last
14 week forest and industry specialists held a conference
15 which they called BIOFOR/BIOQUAL. They were studying
16 the alternatives to the 129 chemicals considered
17 harmful to the environment. They are seeking
18 biological alternatives for industrial chemicals used
19 in their operations. The first part refers to bio
20 forest. The second part of the acronym, BIOQUAL,
21 refers to the network dealing with the industrial use
22 of bio-technology for the preservation of environmental
23 quality. If nuclear scientists were not there they
24 should have been. It follows from the Bruntland report
25 to seek biological solutions to industrial problems.



1 Remember the quote from Einstein at the
2 start of this presentation? To close, we salute Elijah
3 Harper the Manitoba Native and Member of the Manitoba
4 Legislature who, with a feather in his hand signifying
5 he spoke from the heart, brought down a political idea
6 not acceptable to his people. Einstein would have
7 loved it -- it came from the heart of humankind. Thank
8 you.

9 THE CHAIRMAN: Thank you, Mr. Young. for
10 presenting the views of Project Ploughshares so
11 directly. Are there questions from members of the
12 Panel who would like to put them to Mr. Young while
13 he's with us? Doctor Wilson.

14 DR. LOIS WILSON: Thank you for this
15 presentation. On page two (2), you talk about "the
16 shame to pass on the wastes which will be a problem of
17 hundreds of generations of descendants." But then you
18 go on to say, "Not On Planet Earth". Can you help us
19 with what we're going to do with it? I mean we have
20 this stuff, what do we do with it?

21 MR. YOUNG: Maybe we sent it to the moon.
22 But stop making it until we do find out what to do.

23 DR. LOIS WILSON: Even if we stop making
24 it, what do we do with the existing material? Do you
25 have any thoughts on that?



1 MR. YOUNG: Well, you know, we could send
2 it to the moon. I'm quite serious with that. We do
3 have ... I don't know what it would cost, but I know
4 what we are doing to try to find a solution is very
5 expensive. And unless ... we should never have started
6 unless we did know the solution. So now that we're in
7 to the problem, we're going to have to spend a lot of
8 money to correct the problem and maybe outer space is
9 the way to go.

10 But I am not a geologist neither am I an
11 engineer. It's beyond me but I think I'm concerned
12 about my grandchildren and as Chief Dan George? says:
13 "You grandchild you carry my blood and my hopes". I
14 think I would have to say from where I sat, we have
15 also settle that poor grandchild with an awful load of
16 death, pollution and fears. So, I'm sorry, I don't
17 have a technical solution.

18 THE CHAIRMAN: Doctor Lapierre.

19 DR. LOUIS LAPIERRE: Mr. Young, I guess my
20 question is on the same line as Dr. Wilson. There is a
21 fact that we do have the waste. Now, I wonder if you
22 have any comments whether we should -- the proposal
23 before us is to have a central deep geological disposal
24 -Do you have any comment on a central disposal unit
25 versus a local disposal?



1 MR. YOUNG: I think perhaps after our
2 problem with the Innu, our problem with local dumps, I
3 can't see any place where people live who would want
4 this kind of a facility. So we should pick out, if we
5 are going to bury it, we would have to find some place
6 on the planet where there are no people. Perhaps the
7 Arctic, the Far Arctic, the Far North, the Antarctic.

8 DR. WILLIAM FYFE: I can't help comment on
9 that, Sir. I was born in the South Pacific, please
10 don't touch the Antarctic! There's a lot of very
11 interesting species there.

12 MR. YOUNG: Right!

13 THE CHAIRMAN: Mr. Van Vliet.

14 MR. PIETER VAN VLIET: Mr. Young, as one
15 who grew up on a bike, I probably have put more miles
16 or kilometres on a bike than any of you in this room
17 put together, I can certainly identify with that mode
18 of transportation. However I feel very hard pressed to
19 see how we could have gone from St. John to Fredericton
20 today on a bike or walking or canoe maybe, there's
21 enough water on the road and I'm not sure that is a
22 solution.

23 Are you suggesting that we turn the clock
24 back to uncivilization and go back to some different
25 form of living that doesn't require energy?



1 MR. YOUNG: Well perhaps that comment was
2 made with tongue in cheek, no doubt it was. In view of
3 the adds that really turn us off. When the nuclear
4 people put adds on the TV and in the magazines saying
5 "We are clean" and we have hearings like this, I am
6 incensed. Yet, I believe that if they say that, then
7 the people who supported them, the politicians and the
8 industry itself, should stop using fossil fuels. It's
9 the other side of the coin. If fossil fuels are unsafe
10 they should not be using them. Treated lightly, but
11 I'm making a point here that I'm incensed of those
12 adds...

13 THE CHAIRMAN: Doctor Lapierre.

14 DR. LOUIS LAPIERRE: I have another
15 question in regard to the comment that you just made.
16 In sending the, you know, sending our waste to space,
17 isn't that a kind of putting your waste on your
18 neighbours lawn because you really don't know what's
19 going to come back from that? Do you think that's a
20 valuable solution to a very difficult problem?

21 MR. YOUNG: No, perhaps send it to the
22 sun, you know, the sun is nuclear, it's radiation all
23 the time. Maybe we could shoot it off into the sun,
24 and let it burn itself out in the sun.

25 THE CHAIRMAN: Thank you very much, Mr.



1 Young for appearing before us this evening. Thank you.

2 ---Mr. Young withdraws.

3 THE CHAIRMAN: Our next participant on my
4 list -- and I've not checked to see if all these people
5 have managed to arrive on rather wet night, Mr.
6 Allison Connell. Is he here? Would you please come
7 forward. Thank you.

8 MR. ALLISON CONNELL:

9 Are copies needed?

10 THE CHAIRMAN: We would appreciate it very
11 much if you do have copies of the presentation. We are
12 taking it down by transcript but it's helpful to have
13 copies, both for us and for the secretariat, of course.

14 MR. ALLISON CONNELL: Shall I ...

15 THE CHAIRMAN: Give that to Ms. Toller if
16 you would. Please, Mr. Connell.

17 PRESENTATION BY MR. ALLISON CONNELL:

18 Mr. Chairman and members of the Panel, I
19 should like to begin at once by requesting that
20 Environment Canada provide this Review with far broader
21 terms of reference.

22 Now, my reason for this request is that
23 any meaningful discussion of one stage of one phase of
24 the nuclear fuel cycle may only take place when
25 participants are free to make references to all the



1 other phases, stages which gave rise to its existence.

2 Thus the fundamental question of the
3 fundamental desirability of having to having to store
4 this high level waste in the first place arises
5 inevitably and must be addressed under the terms of
6 reference.

7 Have we a right to assume -- as the
8 present terms of reference seem to do -- that we are
9 going to continue to produce electricity in a way that
10 places a huge burden on future generations and destroys
11 the sustainable livelihood of the Northern people?

12 It follows that, as it was already been
13 said this evening, that a distinction between existing
14 waste and future waste must be made. As someone said:
15 "If you don't make it you don't have to store it." We
16 can eliminate the problem of future waste storage
17 through an immediate national moratorium on further
18 construction of nuclear power plants and by shutting
19 down all the existing ones.

20 I therefore see the very first state in
21 the fuel cycle, namely mining, as an issue that is
22 relevant to this Review. If, as stated for instance in
23 your publication Dialogue, socio-economic issues are
24 really to be considered then the social impact of the
25 uranium mining on the inhabitants of the region near



1 the mines must clearly be a part of the Review's
2 mandate, in my view.

3 But before addressing the issue of mining
4 I should like to raise a point of major concern to
5 residents of Western New Brunswick, St John River
6 Valley in particular, regarding the proposed storage of
7 low level waste by the State of Maine next door. It's
8 my understanding that a commission in that State is now
9 inquiring into suitable locations for such storage.
10 Since the watersheds of the Upper St John and Ste Croix
11 rivers, which then flow in to New Brunswick, are being
12 considered for these locations I would ask you to
13 recommend that international negotiations be conducted
14 so that New Brunswick's interests are guaranteed due
15 representation in the course of the said inquiry in
16 Maine.

17 The related question of any proposal to
18 store waste from the Lepreau reactor in any such
19 eventual storage site in Maine must also receive
20 effective Canadian representation and be made public.

21 Now, turning to the whole question of
22 uranium mining in the Precambrian shield, Atomic Energy
23 of Canada Limited is now proposing also to store high-
24 level radioactive waste in this same region. It seems
25 to me that in both cases we're thinking of the



1 Precambrian shield as a kind of enormous dump.

2 Traditionally the forested parts of the
3 Precambrian shield have nurtured small organic
4 societies of hunter-gatherers. The forested shield
5 yields meat, fish, roots, rice, herbal medicine and a
6 variety of edible berries on a sustainable basis.
7 Certain remote parts of the great forested shield
8 remained until very recently the last pristine,
9 unviolated, places in Canada.

10 That was true for example of the Wollaston
11 Lake region in far Northern Saskatchewan. Then a road
12 hundreds of kilometres long ravished the face of the
13 land and uranium mines were developed.

14 But this particular use of the land
15 prevents it from nurturing people just as the burial of
16 highly radioactive fission products threatens to render
17 the land barren. In neither case abusing the land,
18 thinking of the land as a dump, can the land continue
19 to be a life-giving mother. On the contrary these are
20 ways of using up nature's capital rather than her
21 income -- as the local people do -- and creating a
22 permanent natural deficit which is both nature's loss
23 and ours.

24 As Thomas Berry has said so eloquently:

25 "Only in a viable natural world can there



1 be a viable human world."

2 The many documented spills of low-level
3 radioactive slurry from the very large mill tailing
4 dumps around the uranium mines of the Wollaston Lake
5 region have threatened the natural livelihood of the
6 Hatchet Lake Chippewa Band in what really amounts to a
7 plundering of their natural sustaining environment.
8 That tragic situation is there in black and white for
9 all to behold. It really means that Aliens from the
10 outer world have invaded their land and imposed
11 unnatural risks upon this totally innocent people so
12 that the benefits may be enjoyed by those same aliens
13 thousands of miles away. This is colonization in its
14 most cynical form because the nurturing sustainability
15 of the land has been destroyed by the aliens. It is
16 very similar to the growing of "cash crops" by wealthy
17 landlords in the tropics who are ignoring local needs
18 for instance for diversified food.

19 As a native and resident of the
20 Precambrian shield for whom the shield has always been
21 a front yard, not a backyard, my subjective reaction to
22 AECL's storage proposal is that it considers the North
23 merely as a back yard in which it is perfectly
24 permissible to dig "high tech" holes. In doing so it
25 is insulting the land that Canadians consciously or



1 unconsciously identify as the real Canada.

2 Do we want Canada today or are we ready
3 to break the nation into its component parts? That is
4 the question and a case can be made for both positions.
5 But it is the Precambrian shield that makes Canada a
6 geographical identity.

7 This is probably not a time for idealistic
8 national ... some idealistic national mystique but if
9 we've lost our old nationalism we can still cultivate a
10 mystique of the North. We could, then, dedicate the
11 entire forested shield as a huge nature reserve. There
12 would be good scientific reasons for doing this and
13 such a policy would be no more outrageous than
14 dedicating it to its present status as a huge dump.

15 We are showing symptoms of ... in
16 proposals of this kind, of the same kind of
17 dissociation that makes us into lemmings when we
18 premeditate nuclear war. If we were to come to our
19 senses we would see the North not as a place to be
20 colonized but a place where we are part of it, a place
21 we are part of as for instance the Chippewa chief
22 Kasmere and the famous Ragnar Jonsson, the hermit of
23 Newton Lake, were part of that wilderness. On its own
24 terms we have everything to learn from it about our own
25 relatedness to the ecosphere.



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THE CHAIRMAN: Thank you Mr. Connell. May I now ask the Panel members if there are any questions that they would like to put in pursuance of the observations which Mr. Connell has placed before us this evening? Doctor Lapierre.

DR. LOUIS LAPIERRE: I guess Allison from your comments I would gather you're not for placing the waste in the Precambrian shield but we do have, and we have produced some waste. Even if we stop as you indicated, producing any more, there is some waste that we need to take care of. Do you have any suggestions as to what we should do?

MR. CONNELL: I should explain at once, Mr. Lapierre, that I'm personally not an engineer, not a scientist, I'm a humanity's man and I know that there are lots of scientists and engineers who have devoted their lives to these questions and issues. Basically, I suppose we should call them the "how-to-do-it" people, I'm not a "how-to-do-it" person and I would be the first to admit that.

I really would prefer not to suggest a particular "how-to-do-it" method of disposing of high level radioactive waste because that's really not my province but I'm sure that there are many people who can do this for us.



1 I might say that one of the major concerns
2 of citizens who have been sceptical about nuclear power
3 for years beginning with people like the famous E.F.
4 Schumacher the author of "Small is Beautiful" is that
5 the question of nuclear waste disposal the fact that we
6 have never have had a guaranteed means of doing it is
7 one of the things that makes nuclear energy
8 unacceptable really.

9 The fact that we've gone ahead with this
10 monster without really knowing how we're going to
11 dispose of it at the end. I don't really like the word
12 dispose, by the way, with reference to high-level
13 waste. I would prefer the word storage because we're
14 really not concerned with disposing of it, we really
15 cannot dispose of it. We're faced with the necessity
16 of storing it.

17 So I would suggest that we delete the word
18 disposable in the entire Review, and the word disposal
19 rather and substitute the word storage. I think that's
20 about the only comment I would like to make on that.

21 DR. LOUIS LAPIERRE: Storage for you has a
22 different meaning than disposal?

23 MR. CONNELL: Than disposal, yes.
24 Disposal seems to suggest that somehow or other we can
25 do well with it entirely which is not the case of course.



1 DR. LOUIS LAPIERRE: Storage implies
2 monitoring?

3 MR. CONNELL: Storage means ... implies
4 that we are responsible for finding a place in which to
5 store it. Someone suggested the sun but the mechanics
6 of getting it into the sun are not my particular
7 province.

8 THE CHAIRMAN: Dr. Wilson?

9 DR. LOIS WILSON: Just to say you've put
10 your case for the ... one of the reasons you are
11 opposed to this is ... what you see is the violation of
12 the land?

13 MR. CONNELL: Hum-um.

14 DR. LOIS WILSON: And while you are not a
15 scientist you would then be opened to looking at some
16 alternatives for storage?

17 MR. CONNELL: Yes, I would certainly be
18 opened to looking at alternatives. The part I wanted
19 to make was simply that we must stop producing the
20 waste. When it comes to the existing waste ... and I'm
21 very pleased, I might say, to note that the Panel is in
22 fact making a distinction between nuclear waste in
23 general and existing nuclear waste that is between
24 future nuclear waste and existing nuclear waste. I
25 think it is most important to make that distinction.



1 But since we do have existing nuclear
2 waste, the alternative means of storing it, it seems to
3 me ... would obviously be a matter for the experts.

4 THE CHAIRMAN: Thank you very much indeed,
5 Mr. Connell.

6 ---Mr. A. Connell withdraws.

7 THE CHAIRMAN: I have next on my list Mr.
8 Mark Connell. If he is present, could he come to the
9 front of the room?

10 REPRESENTATION BY MR. MARK CONNELL:

11 I don't have any paper, I just got out
12 of the bush this afternoon and running up here. I'm a
13 geologist and I also represent the ... I'm the vice-
14 president of the NDP Association and I have some
15 political interest in the NDP and the Kings East
16 provincial riding as well.

17 I also represent the Sussex Society of
18 public interest and I'll also loosely talk on behalf of
19 all these various groups as well as myself.

20 The first thing I would like to address
21 and I think probably Doctor Fyfe knows much more about
22 this than I do as my partner Don Addy has already
23 talked of them in glowing terms, I feel a little
24 humble to talk about geology in his presence because I
25 probably will make some errors but it seems to me one



1 of the problems that we note here in the region here of
2 the Appalachians and I think also this probably happens
3 in the Cordilleras, is that we have very young
4 granites.

5 And I also may be suggesting that we don't
6 store our wastes in the Canadian shield but I think
7 also as a geologist who observes the unroofing of
8 younger granites you see with the pressure release as
9 the sediments are taken, the load is taken off these
10 granites there is a great deal of horizontal jointing.

11 And it seems to me that rock burst with
12 a bound and all sorts of mechanisms would be available
13 for the radioactive materials stored in the silicate
14 jell or whatever canisters to develop the radioactive
15 heat. And I'm sure, Mr. Fyfe has already told you that
16 the mantle keeps and produces its heat underneath the
17 crust via this mechanism of radioactivity and the decay
18 of radioactivity produces a heat that keeps all that
19 rock molten.

20 With this viscous rock, the material
21 that would be stored underground would also like behave
22 in a very small scale much like the material in the
23 mantle which would probably generate heat at some point
24 would knock the canisters and the clay material which
25 is going to be stored in and is going to probably be



1 subject to hydro-thermal hot water systems which would
2 be generated ... which would be carrying at this point
3 radioactive materials which would then get into the
4 ground water and circulate.

5 So I think that that's a concern and the
6 Nuclear Regulatory Commission in the early 70's looked
7 at that and they dismissed it in those days calling it
8 the pyramid syndrome and the USGS went along with that.
9 And as a result, they searched elsewhere for other
10 solutions. Other solutions did not come by, so now
11 they've retreated back to the pyramid syndrome which
12 the Canadian Nuclear Industry seems to be experimenting
13 with.

14 Now, I don't think it's the best solution,
15 -but perhaps it's the ... I agree with Allison and the
16 Project Ploughshares people and I don't think we can
17 afford to produce any more nuclear waste.

18 If we ... the fossil fuels problem, it's
19 another problem which Terry and the people from the
20 nuclear industry will also point their finger at, and
21 they say that the nuclear power is a solution to the
22 fossil fuel problem which is a gross error in most of
23 environmental people's opinion and I think in
24 scientific opinion.

25 I think it's very unfair to the Power



1 Commission and to the Nuclear Corporate people to
2 proliferate those ideas. Because it would take
3 something like 10 ... about 85 trillion dollars in the
4 next 35 years to produce enough nuclear generated
5 electricity. That's about 1,000 megawatt reactor every
6 two days throughout the world to offset about between
7 10 and 20% of the CO₂ generation.

8 So nuclear power is not a solution for
9 global warming. If we double our population of
10 automobiles we destroy the atmosphere. If we continue
11 to produce nuclear fuels we will undoubtedly destroy
12 the ecosystem in an other manner. So like both ...
13 they're not substitutable but we must have new energy
14 systems that are being elaborated and talked about by a
15 variety of people and scientists, and engineers
16 included which are not funded.

17 If just one iota of the percentage of the
18 money that goes into to the nuclear industry were put
19 into conservation on the fossil and ... rather the
20 solar technologies etc, I think we would be going a
21 long ways toward developing "sustainability" and be
22 able to shift -- but now, that is -- out of these
23 poisonous style technologies.

24 So Ursula Franklin on that I think on an
25 ideas' program about a year or so ago, she talked about



1 solutions to these kinds of technologies that really
2 aren't ... it seems like scientists aren't behaving as
3 scientists but they're behaving like perhaps a medieval
4 monastery that they are behaving more in a sort of a
5 sense of ... as a kind of a cult man in a way.

6 But a premise of any scientist should be
7 to avoid to worst possible scenario and I think
8 scientists and engineers on the board here would agree
9 with that. And of course, the worst possible case is
10 already in the military sense has been the letting off
11 of the Hiroshima-Nagasaki bombs and we've had the worst
12 possible cases in ... we really haven't had the worst
13 possible case with regard to nuclear accidents yet.

14 Chernobyl is not the worst possible case,
15 in spite of the fact that it's ... that it created an
16 extraordinary amount of... like environmental
17 destruction throughout Northern Europe and has caused a
18 number of countries in Europe to disclaim and back out
19 of the nuclear power generation.

20 If the public were properly informed,
21 which I don't think it is, we would probably go along
22 with what Allison and the gentleman from Project
23 Ploughshares have suggested that we would ... we must
24 stop any further proliferation of nuclear waste.

25 Now we still have to deal with the waste



1 that exists. And I think that doctor Lapierre and
2 doctor Fyfe have to have an answer to these, and we all
3 have to have a solution, we all have to have an answer
4 to this.

5 I agree that we shouldn't be transferring
6 it to somebody else's backyard, especially when that
7 other person is a little less literate, a little less
8 understanding that those cultures aren't able to grasp
9 what we are foisting on them.

10 I'm also, among other things involved in
11 sanitary landfill siting and one of the problems that
12 somebody ... we've already talked about as "Nimby",
13 well down in our end neck of the woods it's not in
14 anybody's backyard. Nobody wants it in their backyard.

15 And I agree with doctor Fyfe, that we
16 can't go shovelling it off into the Antarctica. There
17 are a number of groups throughout the world now are
18 trying to preserve the Antarctica as the last
19 untrammelled continent. And I think that there's a
20 certain merit when you consider what homosapiens have
21 done to the rest of the ecosphere and all the other
22 continents. We've knocked off something like a million
23 species during this century alone, and probably will
24 eliminate another million in the next decade just
25 through our devastation in ... not only the tropical



1 forests but the removal of the Boreal forest as well
2 which is sort of a hidden issue.

3 There are few other comments I jotted down
4 when I was downtown a few minutes ago, in terms of the
5 constraints but I think Allison has already referred to
6 those, I don't think I want to labour those points.

7 I think there should be democratic input,
8 you know, it bothers me that scientists are making up
9 their minds are making up our minds as it were for the
10 rest of the community at large.

11 Here in New Brunswick for instance we had
12 a pole before the last election, 72% of the people were
13 against any further nuclear power development. Forty-
14 eight (48) of the 52 MLA that we have poled at the
15 time, and I ain't going liberals except for McKenna and
16 three other MLA were against nuclear power at the time.
17 And that pole was carried out by the Conservation
18 Council mind you, that's an environmental network, but
19 the question was a fair one. And the responses --
20 right across the board through all political parties --
21 were just that.

22 Now, it seems to me that most of the
23 citizenry is aware - that is the public at large -
24 given proper information that ... to the point that
25 they would agree to stopping any further generation of



1 nuclear waste.

2 But what we must do with the generated
3 material is an enigma. I don't know if we can put it
4 down into the mantle, through the ... I don't think
5 that really is a viable situation although like
6 probably by the time they get it into one of those
7 lower pill-plates in the tectonics of what goes on, it
8 will be well after 240,000 years before it arises back
9 up in a ... but I see that as a far cheaper solution by
10 perhaps imbedding it into ... deep into a plate that is
11 subducting rather than shooting it up into outer space
12 and perhaps a billion of dollars invested in some
13 search for a deep mantle burial might be a better one
14 than how you go about injecting it down into to those
15 lower plates, I don't know. Perhaps doctor Fyfe, you
16 might have some comments there. I guess that's about
17 all I have to say.

18 THE CHAIRMAN: Thanks Mr. Connell. Can we
19 have the opportunity for a question or two is any Panel
20 members wish to? Doctor Fyfe.

21 DR. WILLIAM FYFE: You are very kind to
22 me! Our job here, as you noticed, is to listen to
23 people and so on.

24 I think one of the points that's raised in
25 your discussion, now we've heard quite a lot about this



1 from different groups who say that if the power is
2 produced in your region and you use it, you should take
3 the waste.

4 MR. CONNELL: Absolutely.

5 DR. WILLIAM FYFE: I was going to ask you,
6 what do you think of this philosophy, because it is a
7 very important philosophy?

8 MR. CONNELL: I think it's absolutely
9 correct. I think we must do that. If we ... but there
10 are ... our problem was that we were not informed when
11 we got into this. Let me give you some of the
12 background in our... We got involved in the nuclear
13 industry and it was a "Mr. Karr" who was the manager of
14 the nuclear ... the NBEPC local utility here at the
15 time. He also sat on the Board, I believe, of the
16 Canadian ... he was the President of the Canadian
17 Nuclear Association at the time. He sat on either AECEB
18 or AECL, I forget just now, it's been published in
19 several places.

20 He went and got Montréal engineering to do
21 an energy audit for the province. Well Montréal
22 engineering happens to have a subsidiary called
23 "Canatom". And so like these kinds of decisions were
24 not being made by an educated public at large but by a
25 very ... a small group of vested, if you want,



1 technocrats or bureaucrats or scientists. And that's
2 the kind of thing that has railroaded us into this
3 problem.

4 Now, as a result of their decision, we,
5 the rest of the population, have no input into that
6 decision in a democratic or any other way, we have to
7 take responsibility for that waste and I think we
8 should have to take responsibility for it here.

9 In spite of the fact that we can't bury it
10 in these young granites, I don't think it's plausible
11 to put it down in these devonian granites. I think
12 you would agree, and I don't think it's plausible that
13 we have the ... we don't have the plate mechanism here
14 in the Appalachian region whereby we can put it down
15 the Chetibouctou fall somewhere so deeply that it's
16 going to perhaps like arise back on surface in a one or
17 two or three millions years down the road when it's
18 perfectly harmless.

19 Now, as you know there have been in Africa
20 uranium deposits that have gone critical and those are
21 being disposed of, if you want in a sense in geological
22 manner, but that's not to excuse us.

23 DR. WILLIAM FYFE: Thank you very much. I
24 agree, I think what many speakers have said this
25 evening and during these hearings, I think we are



1 moving into a new period of this type of decision
2 making. I think that view point that society I think
3 has been very sloppy is true.

4 MR. CONNELL: Yes. Well, we need our kind
5 of Glasnost and our kind of Peristroïka if you want,
6 you know.

7 THE CHAIRMAN: Doctor Lapierre.

8 DR. LOUIS LAPIERRE: Mark, I agree with
9 you, I guess there's a problem in putting it into a
10 deep granite deposition in New Brunswick for obvious
11 reasons some of which you've stated. But we do have
12 the waste here. Do you have any comments on sub-
13 surface storage and as a method of keeping it?

14 MR. CONNELL: No, I haven't really been
15 following it. I'm a little amiss here, it is a little
16 hard to follow everything. I tend to be an economic
17 geologist and run around chasing after ore bodies for
18 mining companies and what have you, and I haven't
19 really followed the mechanism. I'm a little
20 distrustful of it knowing what can happen in ... with
21 hot spring activities, I observed ancient hot springs,
22 and recently in the Bathurst camp, we've looked at
23 ancient hot springs and how broken up they are in the
24 clay caps, which I think these people are considering
25 to pack the radioactive material in, is usually around



1 these hypo-thermal and meso-thermal systems are broken
2 and fractured and have all sort of avenues for escaping
3 fluids.

4 And it's quite clear to me also just
5 knowing how radioactive material behaves that the heat
6 will develop if it's contained to knock the canister
7 and waters that are either inherit in the clay or that
8 will be sucked if you want from the surrounding wall
9 rocks, will be supercharged and circulated to the
10 rocks. They will circulate. I think, later probably,
11 doctor Fyfe can elaborate on that in much more eloquent
12 way than I can, but ... There are systems for instance
13 in Ireland where some geologist feel that, you know,
14 waters will circulate through the entire base and we're
15 just 25,000 feet thick and carrying minute quantities
16 of copper and deposit these in chemical or physical
17 traps you see, forming ore bodies. Well, you know,
18 we're not talking about those kind of spaces, we're
19 only burying this thing a few hundred feet or a few
20 hundred meters and it's ... we're not talking about
21 this huge geological settings. We're talking about
22 very small setting, and one particular granitic rock
23 which is inevitably going to be, no matter how clear of
24 fractures it is, is going to have fractures. There is
25 just no way that it can be free of "conduites" for



1 water. I think must geologists would agree to that.

2 It's just that they're going to look at
3 the least ... what we're looking at is the least
4 harmful situation on that.

5 And I think it's a catastrophe that we're
6 going to export this thing like as Allison suggested,
7 some colonizing power to the Canadian shield.

8 THE CHAIRMAN: Doctor Wilson.

9 DR. LOIS WILSON: May I ask if it has to
10 be exported, do you have any comments on the questions
11 around the transportation of such material elsewhere,
12 to elsewhere?

13 MR. CONNELL: Well, that's another old red
14 herring that's really ... again we're talking about
15 half-lives of 24,000 years that go on for ten times
16 that before they cool down. And how long can we go on?
17 What sort of social cost are we going to be developing
18 as well as economic cost over a long term, and I don't
19 think we can possibly transport this stuff.

20 God knows what Québec is going to be like
21 in 20 years let along like 240,000 years. God knows
22 what our political climate is going to be. I think
23 we're making huge assumptions here.

24 And a technical fix, I don't think is the
25 response. I think the response is a social and



1 political fix. But like there has to be some technical
2 fix for the already produced waste and I don't suggest
3 we make an arsenal and shoot it off into space or
4 whatever ... I think that somehow we've got to start,
5 as I think Allison suggested rather than dispose of the
6 stuff and we're in an extraordinary bind because it's a
7 no-win, no-win situation.

8 THE CHAIRMAN: Thank you very much indeed
9 Mr. Connell.

10 ---Mr. Connell withdraws.

11 THE CHAIRMAN: Our next participant for
12 this evening is Mr. Stanton Friedman who will be here
13 to present the views of SCAT Incorporated.

14 PRESENTATION BY MR. STANTON FRIEDMAN:

15 Thank you for giving me this chance to
16 speak. Maybe I better explain that SCAT is Science and
17 Technology Incorporated. There are some other words
18 and other languages I've heard that mean different
19 things which I won't go into!

20 I've been to several hearings dealing with
21 nuclear matters and frankly they distressed me. Part
22 of it is my pride in being a nuclear physicist. I've
23 been concerned with radiation since 1956 and that
24 doesn't mean fearful and frighten, just respectful.

25 I've worked on power plants of many



1 different kinds but I've also worked with food
2 irradiation, with all kinds of practical applications.
3 Part of the whole business of the good things that
4 nuclear energy has done for mankind. It seems to me
5 that it gets lost in the shuffle, that what's missing
6 from most of the hearings and from what I've just heard
7 from the previous three (3) speakers, seems to be in a
8 sense of context, things are dangerous, we use words
9 rather lightly "nuclear waste dump".

10 I can't imagine anybody referring to this
11 with any sense as a dump. A dump is a place where a
12 guy in a pick-up truck shovels junk off the back of the
13 truck where you dump your old anything, sitting out
14 when the birds come and, you know, give you a problem
15 when you're there.

16 This is not waste in the traditional sense
17 of the word. Here's a nuclear fuel bundle from a CANDU
18 reactor. Does that look like garbage? Not to me it
19 does not.

20 It seems to me that we have to recognize
21 what this represents and the context we need. This
22 gives us much energy as burning 400 tons of coal. Four
23 hundred tons of coal, that's four railroad cars, to put
24 it in simplest terms or 1,800 barrels of oil.

25 When you burn 400 tons of coal you get a



1 thousand tons of CO₂, you get 40 tons of ashes, that
2 you could call garbage. It's a mucky mess of stuff.
3 You get gas going up the stack, you get ash that need
4 to be shovelled away. The volumes are enormous. What
5 do you get after this has been a reactor for a year?
6 You get this, it's highly engineer, fancily made, it's
7 expansive. This is a dummy for those of you who worry
8 about uranium. I wouldn't be able to live to this
9 easily, uranium is heavy.

10 But the high-level nuclear waste is
11 inside, okay? It's a high melting point ceramic
12 material. Now why is it a danger to anybody who's any
13 distance from it. That's what I'm trying to figure
14 out.

15 People are talking ... like we're talking
16 about tanks full of toxic gases or liquids, that the
17 tank will burst and it will go all over the place and
18 poison everybody in sight. You stay away from this
19 thing and nothing happens to you. And it's stored
20 right where it's produced, it doesn't go outside the
21 site right now for ... even if there is a central
22 repository. I think the latest date I've heard is
23 2025, some number like that. So we got a long time in
24 other words. We're not putting fresh fuel in it.

25 Now, again I object to waste for a



1 different reason not only because it's a fine machine
2 rather sophisticated bit of technology, but also even
3 after it's been used - and then I wouldn't hold it in
4 my hand - what's inside still is capable of producing
5 an enormous amount of energy. To talk about waste when
6 you could get much more again ten times as much
7 actually if you could use it all by recycling this
8 boggles the mind. Why would you throw that good stuff
9 away?

10 So I want to put it where you can see it
11 not directly but at least have access to it. Monitored
12 retrievable storage that fancy phrase down in the
13 States.

14 So I think, first of all, we need to
15 change our mind about what we're talking about.
16 Second, we need to make some direct comparisons.
17 Somebody said we ought of stop producing nuclear waste
18 that means getting rid of 40, 45% of Ontario's electric
19 power. That makes no sense to me at all. It certainly
20 wouldn't make any sense to people in Ontario.

21 It's not a question of "let's shut it down
22 and that's the end of it." What are you going to do
23 instead? And I'm for conservation, I'm for solar
24 energy, I'm for wind energy, hydro power or whatever
25 you can use all of these things. Just because I'm a



1 nuclear physicist doesn't mean I'm against nature or
2 against conservation. I belong to the Air and Waste
3 Pollution Control Association, Human Waste Management
4 Association.

5 But let's not respond to what are
6 basically phobic type fears. Some people are nuclear
7 phobes if you will. Forget all the good that nuclear
8 technology does for us at the hospital in cleaning, in
9 sterilizing the medical by-product over at the
10 hospital, the disposable products in treatment of
11 cancer, in diagnostic procedures, in X-Rays and all
12 these other things.

13 Some people can't handle anything nuclear.
14 Now, we recognize phobias in our society, there are
15 people who are afraid to fly, there are people afraid
16 of snakes and spiders, you name it somebody's afraid of
17 it, wolves for goodness sake, and old people don't walk
18 if there's a dog around. Some people can't stand
19 heights but we don't respond to that by saying "ground
20 all your airplanes", limit all buildings to one story,
21 kill all snakes, get rid of all spiders. That's not
22 how our society operates. If people wants to stay away
23 from it, it's very easy to do. Things nuclear and
24 radioactive are among the most controlled substances
25 around.



1 We talk about Chernobyl, sure it was a
2 disaster. It cost the Russians a lot of money and a few
3 dozen people. Now, I haven't heard anybody here
4 suggest "get rid of all the cars because 50,000 North
5 Americans got killed last year and 4,000,000 got
6 injured. Maybe that's what we should do.

7 Living is risky but we have to have an
8 ordered sense of what is really dangerous. It is
9 certainly true that if a 747 crashed on my house, it
10 would destroy my house. I should say I would be
11 utterly irresponsible if I said my primary design
12 criteria for my house is that it should withstand the
13 crash of a loaded 747. Better I should have a smoke
14 detector at home that's much more of a risk, much more
15 likely to happen. So that something is dangerous,
16 sure, the gasoline in my car is dangerous. There are
17 cars parked all around this building somebody with a
18 book of matches could start an awful lot of fires, kill
19 a lot of people.

20 We respect gasoline. I'll bet 90% of the
21 people in this room have gasoline in their garage for
22 their snowblowers, for their lawnmowers. That's a
23 volatile toxic substance, it will kill you if you drink
24 it. It will explode if you don't treat it properly.
25 But all of us have it, almost all of us. I won't



1 guaranty that all of us have it.

2 What I'm trying to say here is if we're
3 going to talk about nuclear waste, that's the word
4 everybody is going to use, then let's talk about it
5 from a realistic view point of what is it, what can you
6 do with it, how is the volume and danger of it compare
7 with the volume of the stuff you produce if you produce
8 electricity some other way.

9 As somebody said, we, nuclear type
10 shouldn't drive cars. We certainly have never said
11 that you put one of these in a car. What you could do
12 to handle the green-house effect, acid rain, we forget
13 acid rain, we forget the problem of the coal minors, we
14 forget the respiratory problems causing old people and
15 young people from the garbage we're putting in the air.
16 We forget the fact that Canada doesn't have one fossil
17 fuel plant with a scrubber on it -- they'll do it maybe
18 the first, I guess, when it gets operated -- but right
19 now, not one. There's the real danger, not the
20 imagined danger.

21 If you're going to call us dangerous, how
22 many people have been killed by nuclear fuel, world
23 wide? I don't know of any by spent of nuclear fuel.

24 FROM THE FLOOR: Nagasaki and Hiroshima.

25 MR. STANTON FRIEDMAN: That's not spent



1 nuclear fuel, let's not confuse nuclear weapons and
2 nuclear power. You may be against capital punishment
3 that doesn't mean your against electricity because they
4 use electric chairs. I resent people using Einstein's
5 quotes as if he was talking about nuclear power, he was
6 talking about nuclear weapons.

7 It's easy to forget that the bombing of
8 Hiroshima and Nagasaki probably saved, depending on who
9 you listen to, half a million to a million lives
10 Japanese and American. Yes it killed a 100,000 people,
11 those two weapons over a period of time, not instantly.

12 We look at the Off Spring people who worry
13 about the next generation. It's nonsense to talk about
14 the long half-life as if that represented a threat to
15 get back to the nuclear issue. I've worked with
16 plutonium, every deep space probe we've sent out has
17 used plutonium fuel power supplies. The ones that are
18 out past Pluton now. The ones that took those
19 wonderful pictures of Jupiter and Saturn, they all use
20 plutonium. We've got a whole bunch of plutonium
21 generators on the moon put there by astronauts
22 incidently. It's not the most toxic substance in the
23 world, this isn't the most dangerous stuff in the
24 world. You got to get it to somebody before it can do
25 them harm.



1 Now, I'll admit, if you could somehow cut
2 up one of the spent fuel elements on this into a nice
3 small bite size pieces, really small and if you want to
4 produce cancer to a lot of people and you could feed
5 that to all the people around, you might cause a lot of
6 danger. But does that make any sense? That's absurd.
7 This doesn't come out of the reactor explode and spill
8 radiations all over the place. For those of you so
9 fearful of radiation let's recognize that all of us are
10 getting more radiation at home from the radon in our
11 basements and I'm sure there are a lot of homes in the
12 province than most of the people at the power plant get
13 at Point Lepreau. I don't mean at the fossil fuel
14 plants. You're against radiation let's get rid of the
15 radioactivity that's in the coal we burn, and it's
16 there.

17 Now, when I hear people say we're going to
18 invade the Cambrian Shield, Canada is the second
19 largest country in the world, it's got the lowest
20 population densities of any country. It's got huge
21 areas with very few people in it. Remember in the
22 United States they store let's say 30,000 nuclear war
23 heads. Anybody stolen one yet? I don't think so.

24 It is possible to segregate land but we're
25 talking about a very tiny volume of material, a very



1 small area of land. "Not in my backyard", we're not
2 proposing. Certainly AECL isn't proposing putting it
3 in anybody's backyard. The comparison with landfill
4 waste dumps is totally inappropriate. Certainly the
5 stuff that's being stored down at Point Lepreau, I
6 think what there's 30,000 used fuel elements that's
7 down there right now. Tiny volume of material stored
8 on site in an existing area and not in anybody's
9 backyard. Carefully controlled, appropriately
10 monitored. That's a far cry from waste landfills if
11 you will.

12 You know, there was a comment about truth
13 being democratic, you should get more input from the
14 people. There's an old saying that "a man is no more
15 entitled to an opinion for which he cannot account than
16 a beer for which he cannot pay." It's easy to take
17 potshots. Several people said they weren't engineers
18 and scientists that relieves them of the responsibility
19 of being accurate, of being careful, of doing their
20 homework, of putting things in context. That doesn't
21 sound like it's democracy to me, it sounds like
22 ignorance.

23 If I'm going to get brain surgery for my
24 child I want to know ... go to somebody who knows about
25 brain surgery. Not pulling the nearest janitor and



1 say: "Hey, what kind of operation do you think we
2 should do on this child?" That's almost what we're
3 talking about doing if we're to say that "forget the
4 scientists, forget the people who've studied the
5 problem, but we know we're against this stuff so we got
6 to get rid of it, we got to stop it".

7 And I am curious, I mean, why anybody
8 would bring up the low-level nuclear waste problem in
9 Maine is if it somehow ... and then attached to that
10 the notion that Point Lepreau's waste would go to
11 Maine. I find that an incredible notion that has no
12 basis in anything. Our fuel elements are not the same
13 as theirs. They're not talking about storing fuel
14 elements there. Our low-level waste is ... it's there
15 but why anybody would take it across the border when
16 it's prohibited by law now I believe again, a
17 controlled substance. I can't imagine why anybody
18 would bring that up.

19 I worked on space programs, before anybody
20 talks about launching a lot of these things into space,
21 I would strongly protest the idea. I've worked on
22 nuclear systems that were put on top of rockets and the
23 safety concerns were enormous the studies we had to go
24 through.

25 I don't want anybody shipping this kind of



1 stuff to a launch pad anywhere. It would have to be
2 close to equator to take full advantage of the rotation
3 of the earth and so forth. And there are accidents on
4 launch pads. You really want to put society at risk,
5 you put a bunch of these on top of a rocket and then
6 have an accident and there goes Florida in terms of
7 spreading junk all over the place.

8 I think that the one concern that I have
9 about the deep storage is the retrievability because I
10 think energy is a primary problem, I think if we went
11 to nuclear reactors and electric heating in buildings
12 and electric vehicles - and it doesn't happen overnight
13 - I think this is the way to get rid of the green
14 earth, reduce the green house effect, reduce acid rain,
15 reduce the respiratory problems and all the rest of
16 that. That of course that's far less in risk to
17 people, in danger to society.

18 You know, I almost get the feeling to
19 paraphrase Winston Churchill in a rather strange way
20 perhaps. If you look at the activities of the noisy
21 nuclear negativists as I call them over the past 15
22 years or so. "Rarely in recent history have so few
23 done so much harm to so many while claiming to protect
24 them."

25 By not building nuclear power plants we've



1 burnt more coal and more oil. We've created more acid
2 rain and more CO₂. We've had people die in coal mines,
3 it happens all the time. We have people died from
4 black earth suffer from black lung disease. We have
5 released into the atmosphere hundreds of tons literally
6 of arsenic, of cadmium, of mercury, of lead, other
7 toxic substances, you don't have a half-life.

8 Uranium as a four billion year half-life
9 there's no reason that the stuff that ... the residue
10 should be less radioactive that it was when you put it
11 in the reactor in the first place. That doesn't make
12 any sense to me. Let's talk about thousands of years,
13 ten of thousands of years.

14 So look around the world right now, in the
15 last few days we've been told our power price is going
16 to go up in New Brunswick. That's mainly because we're
17 burning a lot of oil down at "Colson cove". If we had
18 built a Lepreau 2 five years ago, that power cost
19 wouldn't go up.

20 We have exported ... all our oil used here
21 is import, it's not from Canada. So we've exported
22 billions of dollars to pay for the oil we bring in.
23 The price is higher than it would be if more power
24 plants have been built in the States ... if nuclear
25 power plants had been built in replacing oil fired .



1 power plants.

2 So we've been held hostage really to the
3 phobias of a small group of people who can handle
4 dealing with something that apparently they're not
5 fully cognizant of. I think that's wrong. Let me stop
6 right there.

7 THE CHAIRMAN: Thank you. I was about to
8 remind you that you're just passing the 15 minutes mark
9 which you've indicated should be sufficient for your
10 presentation, Mr. Friedman, thank you. Are there
11 questions which the Panel members would like to put?
12 Doctor Wilson.

13 DR. LOIS WILSON: I have one. We've heard
14 from a number of people in these hearings, not so much
15 about their phobias but the high state of anxiety they
16 have what's been proposed. And since you are a nuclear
17 physicist, could you help us by telling us what you see
18 are the risks of the deep rock disposal concept that
19 AECL should be asked to address?

20 MR. FRIEDMAN: Okay. What the risks are
21 and what they should be asked to be addressed, you
22 understand are two different things.

23 I think they should concern themselves
24 with precisely those things that bring about the
25 anxiety. Because people have been misinformed



1 sometimes by propaganda.

2 DR. LOIS WILSON: What are they?

3 MR. FRIEDMAN: Well, one of them is this
4 whole business of long half-life. The danger, the risk
5 from this. Longer their half-life, the more Alpha
6 particles, the fewer gamma rays, you know. It's not
7 something that we're talking millions of years. I
8 think they should be educated in other words about just
9 what we are talking about. The stuff is inside, it's
10 not liquid, it's not gas. They should be educated
11 about how much radiation they get from other sources
12 besides power plants.

13 Many people seem to have the feeling that
14 if we shut all the nuclear power plants there wouldn't
15 be any radiation in their lives.

16 DR. LOIS WILSON: No. Perhaps you
17 misunderstand me. I'm not asking what the public
18 should be educated about, I'm asking what should we ask
19 from AECL?

20 MR. FRIEDMAN: AECL should present clear
21 comparisons in the volume of nuclear waste versus the
22 volume of waste to produce the same amount of power
23 with coal or oil. The two are different so you'd have
24 to treat them separately.

25 They should be asked to present



1 information on safety of transport of nuclear fuel
2 elements, and they are being transported after all -
3 cobalt 16 fuel pins are being transported - versus
4 safety and hazards and that's injuries resulting from
5 the transport of other hazardous substances.

6 How does nuclear compare? We've got 40
7 years of experience in all of these areas. I think
8 they should be concerned with digging out information
9 on terrorism. How many terrorist acts have occurred
10 where, involving what? I've heard people expressed
11 fears, you know "the terrorists are going to come and
12 grab this stuff". I think they should be asked to
13 consider the health risk from the total fuel cycle if
14 you want to call it that, I guess, that includes
15 mining. But again in a context here are the coal mine
16 deaths, black lung disease, oil rig disasters and there
17 are all the nuclear things.

18 I think that those things, the transport
19 safety, the comparative amount in risks and hazards of
20 material also they should add in there the volume and
21 weight of toxic material produced at fossil fuel plants
22 and it's effect in the water.

23 They should also -- and I meant to leave a
24 paper here that I just took down -- they should deal
25 with the natural environment -- you probably all have



1 this paper, but I'll pass one down. It's from "The New
2 Scientists" and it deals with long-term mother nature,
3 there are several examples around the world that the
4 public is totally unaware of, that deal with
5 containment in geological structures over long periods
6 of time.

7 We have real information, not only in Oklo
8 in Africa but ancient artifacts that have been in the
9 ground for, you know, 3,000 years kind of thing. What
10 happens to the metal? That's an example of that.

11 In other words, I think that they need to
12 deal not only with the straight engineering, which I'm
13 sure they'll do well, you know, dissolution rates,
14 water through granite, all this kind of stuff, but with
15 those other areas in a context that allows people to
16 make a sensible judgment. I have a great deal of faith
17 in people being able to make reasonable judgment if
18 they're given the proper information.

19 But I've been struggled to find that there
20 are plenty of engineers who were shocked when I said
21 this is 400 tons of coal. They said: "What do you
22 mean"? I said: "Well, this is the equivalent". They
23 didn't know that. We forgot in other words what the
24 whole point of using the Atom in the first place was.
25 Small volume, lots of energy.



1 So, I think that in the past their studies
2 have not concerned themselves with some of these areas
3 in this versus that kind of way, maybe not versus but
4 alongside would be better, cooperative.

5 THE CHAIRMAN: Mr. Van Vliet.

6 MR. PIETER VAN VLIET: Mr. Friedman, this
7 is a question addressed to you but I would also don't
8 mind if some of the previous speakers would comment on
9 that and that is: we live in a society that is given
10 the task of coming up with solutions to engineers and
11 scientists and they've done that, they've come up with
12 proposals, they've come up with different ways of
13 dealing with these problems that are before us for
14 discussion.

15 There's also another process that is
16 taking place and more so in society and that is a
17 different form of democracy if you like and represent
18 it with a direct participatory type of democracy since
19 I moved here. How do you reconcile with the process in
20 terms of come to grips with an issue such as this. So
21 at one end, we've had people speak on the subject that
22 said "well, I'm not a scientist, I'm not an engineer, I
23 can't give you solution, that's up to engineers and
24 scientists to do". We hear from you as to how it might
25 be done and how it could be effective yet, these



1 people, they have a legitimate voice, a concern,
2 however you wish to describe it. How do you reconcile
3 the two processes?

4 MR. FRIEDMAN: Well I think we're faced
5 with that problem in a number of areas. All of us help
6 our kids when they're sick but most of us aren't
7 licensed doctors. There's a point in other words where
8 untrained, unknowledgeable, uninformed, uneducated view
9 points should not go past.

10 The whole idea of licensing for
11 professional skills is part of our society, isn't. I
12 think not only doctors and dentists but they're
13 licensed professional engineers, you can't sign off on
14 a drawing unless you met some kind of criteria.

15 So I have no objection to freedom of
16 speech obviously. But freedom of speech has its limits
17 too. If laws of defamation, you can't cry "fire" in a
18 crowded theatre when there is no fire, etc ... I think
19 the production of false information of propaganda needs
20 to be restricted in some way. And also I think that we
21 have never put the burden of paying for the damage on
22 those who cause it when it comes to ... as an example,
23 stopping the building of a nuclear power plant for six
24 months by going to Court, turning out to be totally
25 wrong but costing that company a quarter of a billion



1 dollars in interests that the person who brought the
2 suit is not accountable for. In most of our dealings,
3 if you bring a suit and you lose, you pay.

4 So, what I'm saying is that we have to
5 recognize the principle of accountability and
6 responsibility. And it seems to me that there are
7 times when hearings, not this particular one, but the
8 idea of hearings has really flown in the face of
9 democracy. Democracy doesn't say that every idea and
10 every solution has equal weight with every other, it
11 never has said that.

12 And yet, we've done that. We said every
13 view point is entitled to the same hearing, the same
14 attention, the same response. I can't believe that we
15 really mean that because we don't in other areas. We
16 hire professionals to do our brain surgery.

17 And so, I am concerned that sometimes
18 hearings are a sounding board for propaganda. And this
19 hearing is a little different, I've been to several
20 where the people on the board just sit back and listen.
21 When the person is finished, they say "thank you", they
22 go on to the next person, and lies get repeated over
23 and over and over again. And it seems to me that there
24 is a responsibility on the part of the hearing board
25 not to permit that.



1 If somebody says that Chernobyl killed
2 50,000 people then I think that person has to be held
3 accountable for, you know, where does that number come
4 from? If somebody says that nuclear waste is the most
5 dangerous substance in the world -- as somebody did a
6 few months ago at a hearing -- I have to say "Well,
7 compare to what?". Why do we let that kind of
8 misinformation go out to the public?

9 So, I think that there is a double
10 responsibility here. The press which takes its cue
11 from the experts, you people, and you people
12 yourselves, to make sure that if false information is
13 put out, that it be stopped at the source not let it
14 trickle down in society and become thereafter a part of
15 truth when it was false to begin with.

16 MR. PIETER VAN VLIET: What about
17 legitimate concerns?

18 MR. FRIEDMAN: I think that's why my
19 answer to doctor Wilson was that AECL ought to deal
20 with those concerns, but in a comparative sense, not
21 ... in a context to say things are risky, are dirty,
22 are terrible, all these other things, compared to what?
23 I think that they have the responsibility of making
24 that comparison. And I would fault my nuclear
25 colleagues for not doing enough of that in the last 30



1 years.

2 I talk about noisy nuclear negativists,
3 we've got a lot of quiet nuclear industry types too. I
4 was astonished when I came to this town, they were all
5 in a closet, I think. I was okay for me to speak out
6 because I didn't work for any of the big outfits. But
7 everybody else wanted to shut up. I think that's being
8 irresponsible professionally as well.

9 So, it's not that the concern shouldn't be
10 ... I'm concerned about exactly those same things. I'm
11 worried about carrying this in a truck until I find out
12 how well that truck had to be tested and the container
13 had to be tested. I'm worried about monitoring, I'm
14 worried about all aspects of radiation, just as I am
15 about driving on a highway. I have, you know, snow
16 tires in the winter time, that kind of thing.

17 So there's nothing wrong with legitimate
18 concerns. And I think AECL ought to deal with them.

19 THE CHAIRMAN: Doctor Lapierre.

20 DR. LOUIS LAPIERRE: One comment and then
21 the question. First, you made a comment on security.
22 I think if you face in Global Mail of today, there's an
23 article on security leagues and test set of Fort
24 Alamo which had been considered a very safe repository
25 for many of the United States war secrets. But there's



1 quite an interesting article on how tests were
2 perpetrated at Fort Alamo. So I don't think security
3 is, you know, there are leaks in security and they can
4 happen from time to time.

5 My question is related to models. A lot
6 of the predictions and reliability of the storage of
7 waste is going to be predicated on models because we
8 can't live an experience of 5 or 600 years before we
9 have our answers. How confident are you that the
10 models are going to be exact?

11 MR. FRIEDMAN: I'm not confident they're
12 going to be exact but how exact do you have to be is
13 the question. Within tolerance in other words, if we
14 build in safety factors that's why all engineering
15 designs involve a safety factor, so it's a little low
16 for an airplane because weight is a problem and it is
17 for a train probably or for building. We can build in
18 a big safety factor. I don't think any of the models
19 would be precise.

20 And, on the other hand, I think the
21 difficulty if you're not precise, say you're off for a
22 factor of two (2). Just... I mean, I'm in radiation
23 shielding work and we always talk factors of ... factor
24 two (2) is good enough, kind of thing.

25 As long as you design in that safety



1 factor and recognize that because you haven't put the
2 facility in somebody's backyard and because there are
3 natural effects that are described in the article I
4 just passed down there. The natural restraining
5 factors if you ... you're still in good shape.

6 It's kind of like we all ... most of our
7 cars have one spare-tire. You could make a case that
8 all four tires could go at once, some little kids
9 sprang nails on the road, and if it happen once it
10 could happen twice so you all will carry eight spare
11 tires. Well, some place between zero and eight is
12 reasonable number. We've settled on one. That doesn't
13 mean some of you haven't have two (2) tires go on the
14 same trip.

15 So, I think as long as you build in
16 sufficient safety factor and have protection in depth,
17 that is to say "you don't put it in somebody's
18 backyard", "you don't have the water table"... you
19 know, that goes pass the site being used, being drunk
20 by the people in Winnipeg, just to pick an example.

21 I think if you take all of these things
22 into account, you've got a safety factor on this, on
23 what surrounds it, on the rock that surrounds that and
24 then how slow the water can come in and how slow and
25 rapidly it can go out. You have a whole bunch of



1 different things going for you.

2 So I think all of those have to be taken
3 into account, the safety factor part of that. You
4 don't run a ragged edge. You don't do it precisely and
5 stick with that. We've learned, that's why we have
6 spare tires, I mean ... mistakes are made, unexpected
7 things happen. It's amazing that we have over 400
8 nuclear reactors in operation and what ... 40 people
9 have been killed by the operation of those reactors.
10 That's an incredible record. So the engineers aren't
11 doing that bad a job, it seems to me.

12 DR. LOUIS LAPIERRE: So your comments are
13 that the present technology can predict for the next 5
14 to 600 years which is the critical phase with ...
15 that's just...fairly

16 MR. FRIEDMAN: Yes, I'm glad you ... you
17 see you asked a different question than other people
18 have been asking, you asked about 5 or 600 years, you
19 didn't say 5,000,000, because I don't think we need
20 5,000,000 or even 5,000. I think 5, or 600 years,
21 remember we have artifacts now that were created more
22 than 500 years ago, in Europe, in China, in other
23 places. We know how things respond being underground
24 for a long time. We have the OKLO reactor ... there
25 are some ... certain other situations where we have had



1 uranium deposits and we know how quickly or slowly they
2 percolate through the soil, if you will.

3 So we do have enough history I feel, and
4 the rest of the world seems to feel the same way.
5 After all, Canada isn't alone in having this problem to
6 make reasonably responsible predictions for 5, or 600
7 years. By responsible, I'm including an error bar, if
8 you will, I'm not saying precise, but yes, I am
9 confident.

10 DR. WILLIAM FYFE: Just a brief one to
11 make sure I took it down. I got the feeling from what
12 you said that you would favour at the present time a
13 monitored retrievable storage?

14 MR. FRIEDMAN: Yes.

15 DR. LOIS WILSON: I know that you may not
16 consider yourself an expert in the community, but we've
17 been asked to look at the criteria and methodology for
18 community acceptance of a site for disposal. Do you
19 have any comments on that?

20 MR. FRIEDMAN: I'm presuming, I'm not
21 limiting that to New Brunswick, you're looking at the
22 larger picture of the Canadian shield itself with. It
23 seems to me that the way to go about it is the other
24 way around. To offer a bonus for acceptance rather
25 than paying for acceptance. It's funny, in the U.S.



1 when they were going to build this huge super
2 conducting collider accelerator they had bids submitted
3 because they talked in terms of jobs, in terms of
4 standard of living for the area, all this kind of
5 thing, and they got 20 or 30 proposals I guess more
6 than that really which they boiled down to a place in
7 Texas.

8 I mention this because this whole business
9 of community acceptance comes I think from recognizing
10 that most of the problems are people problems not
11 engineering problems.

12 I attended two of the DOE hearings in
13 Maine where they were considering the possibility of a
14 high-level waste repository over there. And the DOE
15 did everything wrong in not recognizing practical
16 things. Here was going to be an area that was two
17 sites over there that its value for tax purposes would
18 be in debt for 12 years. Of course people would be
19 concerned about that.

20 Here is an area where there would be
21 shipments of nuclear waste. What are they going to do
22 about the roads? What are they going to do about a
23 whole bunch of things? And they didn't take into
24 account any of those very human, very realistic, very
25 appropriate concerns.



1 So community acceptance comes only after
2 you've recognized legitimate concerns of the people and
3 dealt with those rather than brush them aside, saying
4 "our job is technical". No, it's not technical. The
5 concerns of people aren't really technical. They're
6 for the health of their kids, the worth of their
7 property, the safety as they drive by down the road.
8 Those are the concerns they have.

9 And I think that even a technical body has
10 to focus on those. Because you can do all the good
11 technical work in the world and you're not going to get
12 acceptance unless you recognize the legitimate people
13 concerns. I said this to the DOE, and one of the guys
14 agreed with me ... even if the DOE didn't want to hear
15 it.

16 THE CHAIRMAN: Thank you very much indeed,
17 Mr. Friedman on this presentation this evening.
18 ---Mr. Friedman withdraws.

19 THE CHAIRMAN: For the moment I do not
20 have any other people who've asked to speak this
21 evening, and I'd like to call a coffee-break where I
22 hope a bit of informal discussion could go on. But if
23 there is anyone who would like to speak, let me get the
24 name now and we can continue after our coffee-break if
25 there are such.

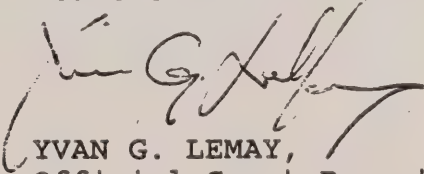


1 If not, we'll say let's pause for a coffee
2 and please don't feel you have to dispute the minutes
3 for this part of the session is over. I hope there
4 will be some informal discussion that will be helpful
5 as well. But I do want to thank very much all of those
6 who turned out in this rather rough evening. I see
7 it's getting worst around and better from what I can
8 see through the windows.

9 Thank you for coming, thank you for your
10 participation, and we have appreciated it and will
11 think carefully on all that has been said this evening.
12 Thank you very much indeed.

13 ---Whereupon the hearing was adjourned, to be
14 reconvened at 9:00 a.m. in Fredericton.

15
16 I, YVAN G. LEMAY, the undersigned Official
17 Court Reporter, hereby certify the
18 foregoing is a true and faithful
19 transcript of these hearings taken by
20 means of stenomask.

21 
22 YVAN G. LEMAY,
23 Official Court Reporter
24
25

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Held at/Auditions tenues au:
Fredericton Motor Inn
Fredericton, New Brunswick

Date: Wednesday, November 7, 1990
Mercredi le 07 novembre 1990

Volume: 9

B E F O R E / D E V A N T :

MR. BLAIR SEABORN	Chairman/President
DR. LOIS WILSON	Member/Membre
DR. LOUIS LAPIERRE	Member/Membre
DR. WILLIAM FYFE	Member/Membre
MR. PIETER van VLIET	Member/Membre

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ON NUCLEAR FUEL WASTE
MANAGEMENT

BUREAU FÉDÉRAL D'EXAMEN
DES ÉVALUATIONS
ENVIRONNEMENTALES
DE LA GESTION DES DÉCHETS
DE COMBUSTIBLES NUCLÉAIRES

SCOPING MEETING
RÉUNIONS DE DÉTERMINATION DE L'IMPORTANCE DES PROBLEMES

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Member/Membre



(i)

A P P E A R A N C E S

MR. DAVID COON

CONSERVATION COUNCIL OF
NEW BRUNSWICK

MRS. KAY BEDELL

NEW BRUNSWICK VOICE OF
WOMEN FOR PEACE

MR. ROBERT YOUNG

VETRANS AGAINST NUCLEAR
WAR

DR. WILSON

CANADIAN MEDICAL
ASSOCIATION

DR. ROBERT WOOLLARD

MS. ANNE-MARIE DUPUIS

PRIVATE CITIZEN



(ii)

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1 ---Upon commencing at 9:00 a.m.

2 THE CHAIRMAN: Good morning ladies and
3 gentlemen and welcome to this second of our three
4 sessions in Fredericton of the scoping meetings being
5 held by the Environmental Assessment Panel which has
6 been asked to review the Nuclear Fuel Waste Management
7 and Disposal concept.

8 The meeting today is being conducted in
9 English but if you wish to have the translation in
10 French ask for the air forms the translators are there
11 to help you. Needless to say if there is any
12 presentations to be made in French we will be glad that
13 you receive them in that language.

14 Could I introduce to you the members of
15 the Panel who are with me today, at your far right, my
16 left, Dr. Louis Lapierre, professor in the Department
17 of Biology at the University of Moncton and the
18 Chairman of the Environmental Council of New Brunswick.

19 To my immediate left is Mr. Pieter Van
20 Vliet from Regina, mechanical engineer and a member of
21 the Senate of the University of Regina.

22 To my right, Dr. Lois Wilson from Toronto,
23 President of the World Council of Churches and Co-
24 Director of the Ecumenical Forum of Canada.

25 And to her right again, Dr. William Fyfe,



1 professor from London Ontario, professor in the
2 Department of Geology and Dean of the Faculty of
3 Science at the University of Western Ontario.

4 My name is Blair Seaborn, I'm Chairman of
5 the Panel, I reside in Ottawa. I'm retired but I
6 served previously as Deputy Minister of the Environment
7 and Canadian Chairman of the International Joint
8 Commission.

9 The members of the staff who are here of
10 our Secretariat, Mr. Greyell at the front table and Ms.
11 Toller and perhaps Ms. Flanagan at the back, she's here
12 in and out.

13 The review today is being conducted in
14 accordance with the federal Environmental Assessment
15 and Review Process (EARP). We have been asked in part
16 to examine the nuclear fuel waste management and
17 disposal concept, a proposal for permanent disposal of
18 used nuclear fuel deep in the granitic rock of the
19 Canadian shield.

20 Let me say a few words about the Panel's
21 mandate. The terms of reference state that the Panel
22 is to review the safety and acceptability of that
23 concept for geological disposal of nuclear fuel wastes
24 in Canada, as being proposed by Atomic Energy of Canada
25 Ltd. But in addition to the AECL proposal, we shall



1 examine a broad range of nuclear fuel waste management
2 issues, including long-term management, transport, and
3 environmental, social, and economic effects. We shall
4 look at approaches to nuclear fuel waste management and
5 disposal being developed elsewhere in the world. And
6 since site selection will not occur until a disposal
7 concept has been accepted as safe, the Panel will not
8 consider any specific sites, but will review the
9 potential availability of such sites and the
10 methodology and criteria required for their selection.

11 Let me say a word also about what is not
12 in our mandate and therefore will be not addressed in
13 our review:

- 14 . the energy policies of Canada and the provinces;
- 15 . the role of nuclear energy within these policies,
16 including the construction, operation and safety
17 of new or existing nuclear power plants;
- 18 . fuel reprocessing as an energy policy; and
- 19 . military applications of nuclear technology.

20 All of these have been excluded from our
21 mandate.

22 I would like to be made perfectly clear
23 however that the members of the Panel are very much
24 aware of the broader concerns related to the use of
25 nuclear materials and the use of nuclear power for the



1 generation of electricity. We have been urging for
2 some time now a broader review of the comparative
3 environmental implications of the various methods of
4 generating electricity. Steps are now under the way to
5 get such a review started, and I hope it will not be
6 too much of a delay in doing so.

7 The Federal Department of Energy, Mines
8 and Resources has written to Provincial Ministries of
9 both Energy and Environment and has also written to a
10 number of energy clients and environmental interest
11 groups asking for their comments of the draft terms of
12 reference for such an examination and I hope that they
13 will move ahead quickly with that to get it on the way.

14 The purpose of these scoping meetings is
15 to allow participants to identify issues that need to
16 be addressed in the environmental impact statement that
17 will be prepared by AECL. The Panel is not requesting
18 the presentation of opinions on the substance of the
19 disposal concept at this time. Public hearings will be
20 held later to discuss whether AECL's proposal is
21 acceptable.

22 At the conclusion of this series of
23 meetings, we shall be preparing, the Panel will be
24 preparing draft guidelines for the preparation of the
25 Environmental Impact Statement to be prepared by AECL.



1 Those draft guidelines will be made available to the
2 public for a period of at least thirty (30) days for a
3 public comment before we put them into final form.

4 They will be issued to AECL, which is expected to take
5 a year, perhaps a year and a half to prepare its
6 comprehensive Environmental Impact Statement and then
7 submitting it and they will submit it to us.

8 Once the Panel is satisfied that AECL has
9 addressed satisfactorily all the items identified in
10 the guidelines, which we are submitting, we will hold
11 public hearings. Participants will be asked to discuss
12 the acceptability or otherwise of AECL's disposal
13 concept in detail at that stage of the review. We
14 shall consider all comments submitted to us and will
15 prepare our report to the Ministers of Environment and
16 of Energy, Mines and Resources.

17 Could I ask to those who have been
18 registered to speak attempt to summarize their concerns
19 in about fifteen (15) minutes, unless they have asked
20 for an additional ten (10). The Panel members may ask
21 questions of clarification after presentation so those
22 are quite clear that we understand the use which you're
23 putting to us. If you have not registered but would
24 like to speak this morning just speak to either of the
25 members, any of the members of the Secretariat and they



1 will be glad to put you on our list.

2 We will also accept written submissions
3 identifying issues and concerns any time up to the end
4 of this month, up to including November 30th 1990.

5 With that by way of brief introduction,
6 could I call upon the first participant for this
7 morning session David Coon who will be speaking on
8 behalf of the Conservation Council of New Brunswick.
9 Please.

10 REPRESENTATION BY MR. DAVID COON:

11 Thank you Mr. Chairman, members of the
12 Panel and good morning. I appreciate the opportunity
13 to meet with you and speak with you this morning and
14 I, particularly before I start, like to thank the
15 Panel, I don't know who set up the schedule but for the
16 amount of time that you are spending in New Brunswick.
17 Our experience in the past has often been a federally
18 constituted panels tend to speed through New Brunswick,
19 spending a very brief period of time. And the schedule
20 I've seen with your appearances in St. John and
21 Fredericton have allowed considerable time
22 comparatively speaking, and I thank you for that. And
23 being here to hear people from New Brunswick in these
24 scoping sessions.

25 Our Conservation Council is the largest



1 environmental group in New Brunswick and the oldest.
2 We were established in 1969 and we operate with a board
3 of directors of 24 and we're a membership organization
4 drawing numbers from across the province, both
5 individuals and groups ranging from women's institutes
6 to labour union locals to some wood marketing boards
7 even.

8 It's kind of interesting, seven years ago,
9 the Conservation Council appeared before another
10 somewhere panel federally constituted under EARP, it
11 can might have been one of the first ones so
12 constituted and it was charged with scoping out the
13 issues within the terms of reference for a proposed
14 second reactor at Point Lepreau, New Brunswick.

15 At that time, we asked that the Panel go
16 back to the Minister of the time, Jean Chrétien,
17 actually, Energy Minister at the time, ask for new
18 terms of reference because the terms of reference for
19 that study excluded, prohibited the examination by the
20 Panel of the need for another reactor, nuclear reactor
21 in New Brunswick and alternatives to an other reactor
22 in New Brunswick.

23 These were fundamental to addressing the
24 issue, we felt therefore very strongly that the terms
25 of reference had to be altered. The Minister however



1 steadfastly refused for what I would characterize as
2 political reasons, that's my own opinion. As a result,
3 our organization along with a number of others and
4 individuals organized a public boycott of the rest of
5 that process.

6 Something we don't take lightly, and I
7 believe, in fact, in our twenty (20) year history, it
8 was the only boycott of a public process that we ever
9 participated in. And it was something that the board
10 of directors spent a long time considering and came to
11 the conclusion that the terms of reference as they
12 were, just did not make for a fair and just assessment
13 of the proposal before us at that time.

14 So today it's with some sense of
15 frustration that I appear before you on behalf of the
16 Conservation Council. We have a different government
17 in place which has initiated an Environmental Impact
18 Assessment Process regarding, in this case, nuclear
19 wastes, appointed a highly regarded panel, I must say I
20 was very impressed to see who the government appointed
21 to this Panel, and people who are respected across this
22 country by diverse groups of people and I think of all
23 interests.

24 But the terms of reference that you have
25 inherited, I submit, are, once again, very restrictive.



1 They are, in my view, serving a political needs and our
2 organization is serving the political needs of the
3 current government in this area with respect to their
4 nuclear power program rather than public needs with
5 respect to very difficult and challenging task of how
6 we should manage the nuclear wastes that we have
7 generated today.

8 So under the current terms of reference, I
9 have to come to the conclusion that this process as it
10 is currently constituted just is not credible. Nuclear
11 wastes, as we all agree, everyone in this room would
12 agree, I think, pauses serious environmental and
13 economic problems for the future. We're dealing with
14 questions of limits to scientific certainty given a
15 time-line, some of these things are so long-lived,
16 ethical questions giving the fact we're --again because
17 the time-line are thinking... have to think about our
18 responsibilities to future generations so it indeed is
19 difficult.

20 It is not in our view appropriate though
21 to isolate one part of the public concern for the
22 release of radioactive emissions down to the question
23 of what to do with spent fuel?

24 We, as a society, are concerned about the
25 cumulative impacts of all radioactive waste products



1 generated along the entire nuclear fuel chain. And
2 certain this is in part where people's environmental
3 concern comes for this technology. We're concerned
4 about waste, we're concerned about release it to the
5 environment from waste products through the entire fuel
6 chain.

7 Terms of reference, as you pointed out, do
8 not permit you to distinguish, for example, between
9 existing waste which must be managed and future wastes,
10 which could be avoided all together. They do not permit
11 you to examine whether it makes sense to produce any
12 more radioactive wastes. It also prevents you from
13 addressing the 175 million tons of radioactive wastes
14 generated so far from uranium mining activities the
15 necessary function in the fuel chain to fuel nuclear
16 reactors. And nor can you look at the wastes created
17 during refining of the fuel fabrication, or the wastes
18 produced during routine operations of nuclear reactors,
19 or frankly, when the reactor itself at the end of its
20 life becomes a waste product that must be dealt with.

21 The restrictions imposed on you, therefore
22 to examine only the abstract concept of deep geological
23 disposal for highly radioactive spent reactor fuel,
24 could lead one to conclude that the Federal Government
25 is trying to prevent a proper environmental examination



1 of the nuclear waste problem.

2 Now, because of these concerns, the
3 Conservation Council is respectfully requesting that
4 the Panel go back to the Energy Minister and request
5 new terms of reference which would enable you to
6 examine radioactive waste management issues along the
7 entire nuclear fuel chain, as well as the question of
8 whether the further generation of nuclear wastes is
9 warranted. And this is a fundamental question and, in
10 our view, absolutely must be examined before we can
11 talk about how to manage the wastes that we currently
12 have and may or may not generate in the future.

13 We would also submit that as your work
14 proceeds a moratorium as recommended by the Standing
15 Committee on Environment and Forestry of the House of
16 Commons, in the report The Eleventh Hour, that your
17 Committee request that a moratorium be imposed on the
18 construction of nuclear power plants in Canada until
19 your work is complete.

20 In 1985 the report of the Environmental
21 Assessment Review Panel, which I mentioned, started its
22 work in 1983, recommended that -- it was the first
23 recommendation in fact -- recommended that:

24 "the Federal Government consider

25 undertaking a public review of the nuclear



1 energy option within Canada's National
2 Energy Policy".

3 In part because of the terms of reference that was
4 given, in part because those terms of reference
5 excluded a lot of important issues related to the
6 proposal that the public wanted to speak to. In its
7 report, pointed out that there has never been a
8 national forum in Canada to discuss future of nuclear
9 power industry. And this is still true today.

10 So what we will propose to you today --
11 this is sort of scenario one and scenario two -- if the
12 Energy Minister is unwilling to expand your mandate,
13 which we think should be the first order of business,
14 then, we would ask the Conservation Council --the Panel
15 suspend its work beyond and after the scoping meetings
16 until a public review of the future of nuclear power in
17 Canada is carried out. Until, either that 1985
18 recommendation is acted on, or perhaps this ministerial
19 joint ministerial task force, Mr. Epp and Mr. de Cotret
20 are proposing on the environmental impacts of different
21 technologies for generating more electricity, could
22 serve this purpose if the terms of reference were
23 appropriate and did allow an appropriate and reasonable
24 assessment of --by the public of nuclear power in
25 Canada that might serve the purpose. But we would



1 submit that you shouldn't put the car before the horse,
2 and that work should be carried out before you continue
3 with yours. Particularly so that this issue -- if your
4 terms of reference are not changed whether or not we
5 should continue to generate nuclear waste into the
6 future -- is dealt with.

7 So, these are two scenarios which we feel
8 are reasonable and give you some options. In terms of
9 the terms of reference themselves, in going back to the
10 Minister, there are a number of issues I wanted to
11 touch on. And the one I mentioned already is that it
12 is absolutely essential to determine whether or not we
13 should continue to permit the production of nuclear
14 wastes. We know there is no technology available or
15 thought of at this point that can neutralize or destroy
16 the whole radioactive wastes.

17 We know that it's basically impossible to
18 prove that there's a storage technology that we can
19 walk away from that can withstand the ravages of time
20 giving a long-lived nature of these wastes and their
21 hazards.

22 For example, the concept before you, deep
23 rock disposal even AECL and Energy, Mines and Resources
24 Canada acknowledge that over a number of centuries
25 radionuclides from the wastes repository will find the



1 way back to the surface, will enter the biosphere and
2 therefore would pass through the ecosystem just as
3 nutrients do in a sense, only these one are hazardous
4 and enter the food chain. But they contend, of course,
5 that the dilution factor would be so significant that
6 as to render the significance of these releases to the
7 biosphere as being minor any inconsequential.

8 It's interesting, it very much sounds like
9 the old comment that the solution to pollution is
10 dilution and that's something, I think over the last
11 two decades that we've come to understand just is not
12 tenable any more because of our direct experience with
13 that approach to dealing with hazard wastes project
14 products.

15 Like Dr. Rosalie Bertell, the Conservation
16 Council believes that if we are to keep long-lived
17 radioactive wastes out of the biosphere each generation
18 will have to repackage those wastes.

19 It's interesting, over the past twenty
20 years when thinking about how we deal with the disposal
21 wastes and industrial wastes, hazardous wastes. We've
22 developed what have become societal norms for dealing
23 with the production and disposal substances which are
24 so hazardous it has to be unacceptable to be released
25 into the biosphere and these consequences are



1 unacceptable to society. We prohibit their production.
2 Immediately DDT come to mind, PCB come to mind. In
3 those cases, we have technology sitter capable of
4 destroying, taking apart those molecules and rendering
5 them armless.

6 It's always been a question in my mind as
7 to why these accepted norms when it comes highly
8 radioactive wastes get bent out of shape. And for
9 example, this Review Panel is not permitted to address
10 this very issue. In Canada, after all nuclear
11 efficient only provides a small amount of energy in
12 terms of total energy consumption, that we still use
13 more coal directly in Canada than we do nuclear power.
14 So it's certainly not related to the predominance in
15 Canada of the nuclear power in terms of the electricity
16 or energy it provides I should say in the total
17 picture.

18 Every school child today in Canada knows
19 the first thing when you've got a waste problem you do,
20 is practice reduction trying to avoid generating the
21 wastes in the first place. And that's why, for those
22 reasons, particularly because this is an extremely
23 hazardous long-lived waste, that we shall ask to be
24 essential to the Panel's terms of reference have to
25 enable you to seriously address this issue. I don't



1 know how credibly one can proceed without looking at
2 the...

3 There's a number of other issues in terms
4 of reference that I want to touch on. One is a
5 question of waste importation and repatriation. You
6 are permitted to look at questions of volume with
7 respect to reprocessing or other processes, About
8 volume reduction, I would submit that terms of
9 reference should also permit you to look at the
10 question of volume that we have to deal with if we --in
11 terms as whether or not we are going to be repatriating
12 wastes from reactors that Canada has sold overseas as
13 one issue and secondly whether or not we will be
14 accepting foreign wastes that are not coming from
15 canadian reactors over time. I think most people would
16 be quite concerned to develop an image as canadians as
17 not only hewers of wood and haulers of water but
18 buriers of nuclear waste.

19 This is not a spurious concern. We
20 understand that in fact AECL has suggested to potential
21 buyers of the CANDU technology, particularly the new
22 CANDU 3 Technology that is being developed that Canada
23 would consider repatriating those wastes. So in terms
24 of volume, I think that's a critical issue.

25 In other areas is other types of



1 radioactive wastes. The question in my mind, and I
2 think in your mind, should be: "How do you distinguish,
3 where do you draw the line between high-level wastes
4 and other wastes?", when in many cases they can be
5 equally as long-lived and pose hazards.

6 So, again, we think the terms of reference
7 need to be adjusted so you can address waste issues
8 along the entire fuel chain and I won't go into details
9 there, I mentioned it very quickly in my introduction,
10 except with respect to reprocessing, which I didn't
11 touch on where plutonium would be extracted from spent
12 fuel, either for fuelling new designs of reactors
13 or/and possibly for fabricating nuclear weapons.

14 This increases the volume of high-level
15 radioactive waste considerably, enters in the liquid
16 creating a...you know...much more difficult in some
17 sense, problem than we've got now. And the experience
18 in Hanford, Washington with liquid wastes, I think, is
19 a testimony to that. I think to the military
20 applications here connections need to be addressed
21 within the terms of reference because when you start
22 talking about reprocessing, if you are going to look at
23 that in terms of its impact on volumes, because it is
24 so interconnected with military applications of nuclear
25 materials, I don't think that it's possible to --and



1 even ethical to avoid examining that issue.

2 With respect to site selection, there is
3 one thing that we twinged on when we were looking at
4 the terms of reference and that is that in our view it
5 wouldn't inappropriate for the Panel to consider the
6 costs and benefits of deep rock nuclear waste dump to
7 potential host communities in terms of costs and
8 benefits. Because the Panel is supposed to be looking
9 in terms of -- at the concept of doing this, and I
10 think that if you looked at the costs and benefits
11 outside of any specific list of sites, it prejudices
12 the process and gets away from the issue before you.

13 And those questions, rightly, should be
14 addressed if and when we ever get down to an
15 environmental assessment of a number of sites or a
16 particular site.

17 Finally, there's a related issue that we
18 believe strongly your Panel should incorporate into its
19 mandate and I think it falls well within even your
20 existing terms of reference and that is, we would like
21 you to undertake as a sub-task, a review of the plant
22 to store waste from Point Lepreau, the spent fuel from
23 Point Lepreau and dry storage canisters above-ground.
24 Point Lepreau will be, as I understand, the first
25 operating reactor in Canada, not the first reactor, but



1 the first operating reactor that will be -- plans to
2 use this approach to storing spent fuel on site. And
3 they have been granted a licence to begin using this by
4 AECSB. But this is been done in absence of any public
5 review and we think it's critical that you incorporate
6 this into your review.

7 The AECSB licensing decision pointed out in
8 fact that possibility of indefinite storage of spent
9 fuel at Point Lepreau on site was never considered in
10 the original federal Environmental Impact Assessment.
11 And that, as they point out, those wastes could be
12 there well beyond the life of the reactor. The reactor
13 is only I'd say seven (7) years old now, eight (8)
14 years old. So its got a considerable period of time to
15 go yet. And that means those wastes could be there
16 well beyond many of our lifetimes. And we feel, given
17 that, that your Panel should look at this issue and
18 take it on as a sub-task. There's been no provincial
19 assessment, there's been no federal assessment, and I
20 think that it would be quite appropriate to examine
21 that in the course of your work.

22 In summary, we are urging the Panel to go
23 back to Energy Minister Jake Epp for expanded terms of
24 reference so that you can fundamentally address the
25 very important issue of whether or not these wastes



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1 should continue to be generated or not. And I don't
2 think that one can examine disposal technology without
3 addressing that fundamental issue even if it applies in
4 the face of standard practice today and how we deal
5 with waste management in municipal and industrial waste
6 situations.

7 And then also to insure that your terms of
8 reference would allow you to address wastes along the
9 entire fuel chain. And we are asking that a moratorium
10 as recommended by the Standing Committee of Parliament,
11 be put in place on the construction of nuclear reactors
12 while your work continues. And then if the terms of
13 reference cannot be modified, if the Minister refuses
14 to do that, that you table your work until an
15 examination of these issues in particular is carried
16 out. And whether it would be a national nuclear review
17 of nuclear power in Canada as it was recommended in '85
18 by the "Venne" Panel on Lepreau 2, or whether the terms
19 of reference could be designed for the joint
20 ministerial Panel or Commission or Task Force, that
21 it's going to look at electrical generation and
22 environmental impacts of that in Canada, either could
23 do it that I expect, but we would like to see that
24 happen first if your terms of reference cannot be
25 adjusted. Thank you very much.



1 THE CHAIRMAN: Thank you, Mr. Coon. I
2 might just make a brief comment on that...one or two
3 aspects of the terms of reference. I think it's fair
4 to say that the Panel also had some sense of
5 frustration that we've been asked to do what we think
6 is a very specific and necessary job and probably not
7 as narrow our mandate is somewhat alleging it to be.

8 Without having a broader context, as I
9 mentioned just in my opening remarks, I'm now
10 reasonably confident that that broader context will get
11 in the way of the review. We are waiting to see
12 whether the terms of reference are considered
13 satisfactory but that will provide at least a forum in
14 which one can look at the comparative environmental
15 impacts of these various ways of generating electricity
16 across Canada and that certainly would allow to make it
17 possible if it's done well, to put the nuclear option
18 within the broader picture. But indeed with you, it's
19 necessary to see what the terms of reference are , that
20 are finally agreed upon to see if that's something
21 which is satisfactory.

22 On one other matter you raised, and that
23 is what you would consider to fit within our terms of
24 reference, and that is longer term storage, I believe
25 that we are coming very much to that to you as well.



1 We are not limited to looking exclusively at the
2 disposal concept of AECL, we have much wider mandate
3 than that, and I'm quite sure that we will be
4 addressing questions of longer term storage in
5 monitoring in various ways. So just to let you know
6 that there are possibilities of a wider mandate,
7 certainly wider than just the AECL concept and perhaps
8 wider than some people have thought of it.

9 Now, may I ask if members of the Panel
10 have any questions that they'd like to put to Mr. Coon
11 now that we have heard his presentation and thank you
12 for the written version as well. Doctor Wilson.

13 DR. LOIS WILSON: Yes, just a
14 clarification around the -- your comments here on site
15 selection where you seem to be saying that it's
16 inappropriate to consider the costs and benefits at
17 this stage when site and concept are separated. Are
18 you meaning by costs and benefits -- what do you mean
19 about that? Only economic or ...

20 MR. COON: Yes. Let me clarify that. I
21 was thinking in terms of economic benefits and costs in
22 particular, living in New Brunswick, I guess, and as
23 the sites that, might be, actually the site might also
24 only be establish would either be in Northern Ontario,
25 or Québec, or possibly New Brunswick, and certainly



1 would it be in a rural area, in an area that's probably
2 poor, under-developed that if there is something that
3 has a lot of money attached to it in terms of economic
4 benefits, it tends to skew ones view of the concept or
5 the environmental impacts of such a concept.

6 And we wouldn't like to see that prejudice
7 the discussion around this issue at this, you know,
8 coming to it at this point. Then, it would be quite
9 appropriate when we're talking about, I we get to that
10 point of a specific site were there's a real community.
11 We know what the community is, what the costs and
12 benefits are and then that could be added there with
13 the people involved who stand the benefits directly or
14 who stand to sustain the costs. However it might shake
15 out.

16 But generically speaking of that at this
17 time, our view would be an element in the debate which
18 would detract from focusing on the environmental
19 issues.

20 DR. LOIS WILSON: So you saw it as only
21 economic costs and benefits?

22 MR. COON: Yes. In that sense, yes, that
23 was our concern.

24 If I could just say in terms of clarity
25 and with respect to the jurist comments there, with



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1 respect to the terms of reference, I was trying to be
2 careful to restrict my comments only to issues dealing
3 with nuclear waste. Because certainly I don't think
4 one has to go into questions of energy policy or
5 anything like that at all. But in dealing with nuclear
6 waste specifically there are areas in terms of
7 reference which shall need to be broaden out.

8 THE CHAIRMAN: Doctor Lapierre.

9 DR. LOUIS LAPIERRE: Thank you for your
10 presentation Dave. We do have a specific mandate and I
11 understand from your brief that you think our mandate
12 is not adequate, but I wonder if you have comments that
13 you would like to have us addressed in our report to
14 AECL regarding the concept that they put forth.

15 Do you have any concerns for the deep
16 geological disposal? For example, if you had choices,
17 would you rather look at a permanent disposal or
18 disposal site with the potential for retrieval,
19 monitoring potential built into it? Do you have any
20 comments on ...

21 MR. COON: Well, I'll give a personal
22 opinion here because it's certainly -- that's a
23 substantive question I guess and I'm quite happy to
24 answer it but, I'll give a personal opinion.

25 And my personal opinion is that with



1 respect to any wastes, I would take the view that they
2 should rightfully be in our backyard and that goes for
3 nuclear wastes as well. And in that sense for the
4 foreseeable future, it would mean keeping this waste on
5 site at the reactor sites.

6 I'm -- with respect to the concept
7 review-- quite concerned about a retrievability too, I
8 mean if you want to talk about "look at that particular
9 technology".

10 I think that if you take the view
11 rightfully in our backyard that the wastes are there
12 where they can be monitored, can easily be repackaged,
13 whenever that's required and the opportunities for
14 keeping those wastes from ever entering the biosphere
15 for the foreseeable future because we can costly
16 repackage them, are much greater than if you move it to
17 a central site, imposing it on some other community,
18 wastes that they had nothing to do with and certainly
19 having to move the waste over a long distance is which
20 also is of concern to me personally. I think that
21 that's an issue.

22 And you know, I think we've done a lot of
23 work on the area of toxic wastes, hazardous wastes in
24 our area as an environmental organization promoting
25 policies for hazardous wastes management. There are



1 very basic principles there that apply here, I think,
2 and that is you minimize the distance you move waste
3 rightfully in our backyard, we've created the waste as
4 a society, province and we should treat them here. And
5 if they're hazardous need to be destroyed or rendered
6 harmless, that's impossible for radioactive waste, that
7 means they have to be kept isolated from the
8 environment and that means constantly repackaging them
9 to insure that happens.

10 DR. LOUIS LAPIERRE: All right, thank you.

11 THE CHAIRMAN: Any other questions?

12 Doctor Fyfe.

13 DR. WILLIAM FYFE: I can't sort of resist
14 a question/comment that you have given the group,
15 important group you work with. I was intrigued when
16 you said that "every school child in the country, --
17 today knows ...", does this imply that, given that
18 Canada either gets the gold or silver medal for -- get
19 waste production in the world that every adult does not
20 know ?

21 MR. COON: The school children
22 certainly...

23 DR. WILLIAM FYFE: I find the children are
24 way ahead of their parents, I wonder if you confirm
25 this, because, this is a tremendous, I mean, the total



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1 issue is tremendous and I was wondering what you
2 counsel?

3 MR. COON: Yes, certainly I agree that
4 younger people are really at this point pushing their
5 parents to become more environmentally responsible in
6 their own lives. And also, interestingly enough, in
7 some cases pushing their parents to speak out and take
8 up their responsibilities as citizens to take a stand
9 publicly, which is nice to see.

10 THE CHAIRMAN: Thanks very much indeed,
11 Mr. Coon for your presentation and for the notes which
12 we have. We will be able to re-read them and study
13 them. Thank you.

14 ---Mr. Coon withdraws.

15 THE CHAIRMAN: Our second participant for
16 this morning session is Mrs. Kay Bedell, I'm not sure
17 of the pronunciation, who will be speaking on behalf of
18 the New Brunswick Voice of Women.

19 PRESENTATION BY MRS. KAY BEDELL:

20 Mr. Chairman, members of the Panel and
21 other friends. The Voice of Women for Peace came into
22 being nationally thirty years ago to protest the
23 totally irresponsibility of above-ground testing of
24 nuclear weapons with no regard for the resulting
25 pollution of the world's atmosphere.



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1 Through our national project of collecting
2 baby teeth to demonstrate that Strontium 90 had been
3 absorbed, we feel that we had a significant part in
4 having that particular type of testing outlawed.

5 Mindful of the close relationship of
6 nuclear power to nuclear weapons, we have persisted in
7 opposing the building of nuclear power plants with
8 their inevitable production of highly radioactive
9 waste.

10 In this scoping session we feel called
11 upon to express certain concerns. Outside of the
12 Panel's mandate are the following issues, the omission
13 of which we deplore:

- 14 1. Nuclear power development itself
- 15 2. The possibility of fuel reprocessing
- 16 3. Military applications of nuclear
17 technology
- 18 4. Radioactive components in plants to
19 be decommissioned
- 20 5. Radioactive uranium tailings around
21 the mines

22 On the other hand, the Panel here would be allowed to
23 consider costs and benefits to a host community of a
24 burial site for the waste. Does this mean that a
25 community might find itself in a profitable business of



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1 importing waste from other areas or even from other
2 countries? This is a situation we would be compelled
3 to oppose. "Benefits" in other words, bribery have no
4 place in this review.

5 Regarding transportation of radioactive
6 wastes to a possible repository, attention should be
7 given to certain features which would be involved, such
8 as:

- 9 1. Accidents, including the ever-present
10 possibility of human error
- 11 2. The frequency of transporting the
12 loads
- 13 3. The perpetually changing economic,
14 political and social forces in Canada
- 15 4. The unpredictable consequences of
16 world climate change

17 These considerations are essential to be included in
18 the guidelines.

19 We note that the Canadian Nuclear
20 Association is in favour of burying the waste
21 underground, but would like access to it for possible
22 reprocessing. This indicates that reprocessing, with
23 its military implications, has to be assessed along
24 with other aspects of management.

25 Alternatively, if the waste is sealed in



1 such a way as to try to dispose of it for thousands of
2 centuries, we are concerned that its long-term effects
3 on the biosphere through seepage, and about its ill
4 effects on the health of our descendants.

5 In order that the best judgments may be
6 made for storage of nuclear wastes, we ask that an
7 environmental assessment of the present plan of above-
8 ground storage at Point Lepreau be included in your
9 guidelines, or that you recommend a separate
10 assessment.

11 Finally, it is important that your
12 mandate, and the guidelines you determine, should be
13 open to revision following the anticipated review of
14 Canada's energy options. Thank you.

15 THE CHAIRMAN: Thank you Mrs. Bedell.
16 I wonder if there's any questions of clarification
17 which any of the members of the Panel would like to put
18 to Mrs. Bedell.

19 MRS. KAY BEDELL: I'll leave a copy of
20 this afterwards with the Panel.

21 THE CHAIRMAN: Fine, that would be ...

22 MRS. KAY BEDELL: I'm sorry I don't have
23 one right with me now.

24 THE CHAIRMAN: Do you have any views which
25 you'd like to share with us on the most appropriate



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1 method of handling the waste which has already been
2 generated but the part from any future wastes which
3 might or might not be?

4 You have certainly made some comments
5 about the burial, you have some concerns about that
6 because of possible seepages to the biosphere. Are
7 there any further thoughts you have on that? Or are
8 they any encompassment you have to say on the
9 transportation plus the burial concerns?

10 MRS. KAY BEDELL: Well, of course, as I
11 mentioned the deep underground storage is certainly a
12 great concern to us. It seems as though whatever way
13 it's handled it's going to be a hazard.

14 We know that some people favour above
15 ground to keep it where it can be monitored, keep it
16 where it can be seen rather than hide it away and out
17 of site out of mind. That is a danger. It's a
18 difficult question. We've got all this rotten stuff on
19 our hands now and what we're to do with it is the
20 problem. Of course, we take the position that -- this
21 doesn't answer your question, but we must stop
22 producing this stuff and we've got a number of it on
23 hand now, and what we're to do with that is a difficult
24 question for the assessment to judge. But we can't
25 be -- feel easy about any form of storage.



1 THE CHAIRMAN: I appreciate that. I'm
2 wondering if you find yourself with some slight
3 preference, and I think I detect it, to keeping it
4 where it is but keeping a close eye on it, rather than
5 moving it somewhere else. Is that ...

6 MRS. KAY BEDELL: I think if there's any
7 ways it might be in that direction all right.

8 THE CHAIRMAN: It might be. I'm not
9 asking for a formal position but ...

10 MRS. KAY BEDELL: ...yes, in that way it's
11 whether we can ever hope that there may be some way of
12 making it less dangerous for a period of time is
13 another question. It seems that if the methods, the
14 nuclear forces seem to -- it's -- when they went into
15 the Lepreau in the first place, we were -- my
16 understanding was that it was to be in the swimming
17 pools and it was later, of course, burial.

18 But this changed to having the above
19 ground storages been quite a surprise to us and put on
20 us without any assessment at all. So I feel that it's
21 an industry that is not very open with the public and
22 it's have to change course without telling us very much
23 about it. But I hope they won't produce any more of
24 this stuff.

25 THE CHAIRMAN: Thank you. Doctor



1 Lapierre.

2 DR. LOUIS LAPIERRE: Ms. Bedell, you have
3 expressed reservations concerning community involvement
4 enticing communities to participate in the storage of
5 waste.

6 I don't know if I understood correctly,
7 but were your comments meant that there should be no
8 involvement of the community or is there a mechanism
9 that you would accept community involvement in? Can
10 communities be invited to look at the possibility of
11 storage? Do you have a mechanism that might be used to
12 involve communities?

13 MRS. KAY BEDELL: It would certainly be
14 considerate to take the community into confidence and
15 explain what's happening. I don't think there should
16 be any economic enticements for it. If a community can
17 be persuaded to have this dangerous burial in their
18 area, they should know about it. But to make it seems
19 as if it would be attractive as sometimes in military
20 installations that you say what the economic benefits
21 will be, in this case, I would hope that there wouldn't
22 be any enticing reasons to have it if they could be
23 persuaded that it would be okay to have it in their
24 community that's that. I don't think they should be
25 persuaded to do it in that way.



1 THE CHAIRMAN: Mr. Van Vliet.

2 MR. PIETER VAN VLIET: Ms. Bedell, you
3 make reference to the fact that you'd rather see the
4 waste kept about ground or kept on site. Do you
5 consider the -- am I to conclude from that that you
6 consider the disposal or the storage as it is today in
7 the water filled base or in the dry canisters to be
8 safe?

9 MRS. KAY BEDELL: No, I think it's very
10 precarious. I think where ever it is, it's a danger.
11 I felt there should have been an assessment, an
12 environmental assessment made of the present storage.
13 That has never been discussed, and the pros and cons of
14 that have never been put to the population here, it was
15 ruled that we, even though there was a great outcry
16 against having that we needed to have an assessment of
17 it, the AECB said "No". We couldn't understand that
18 decision. We feel it has never been debated and so
19 that puts us in a position that it's rather difficult
20 to make a decision that is a good -- the best possible
21 thing here because we've never had the chance to debate
22 it.

23 MR. PIETER VAN VLIET: Yet you advocate
24 that it would be kept above ground?

25 MRS. KAY BEDELL: Well I must say that I



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1 would think I and the members of our organization would
2 be not strong one way or the other because of the
3 danger whatever way it is. But as it was put before,
4 if there's any difference for a while, for a period
5 anyway until we know, understand it a bit better,
6 perhaps some other means might be found to handle it.

7 And I think too, the point that the
8 Conservation Council -- probably -- the personal point
9 of Dave that "in my own backyard" is a good check on
10 people. If we're producing lots of wastes and say:
11 "Well, we're going to ship it off to Ontario for
12 burial", we don't care much. It would be a check to
13 think if we're going to have this in New Brunswick,
14 indefinitely, I think there would be less -- if there
15 is any popular enthusiasm for it, I don't believe there
16 is, but it would certainly be a check on popular
17 opinion about nuclear power if they thought they had to
18 keep it here in New Brunswick. And that might be a
19 sobering thought to them to have it here.

20 MR. PIETER VAN VLIET: Do you have
21 sufficient, in your opinion, sufficient knowledge of
22 the underground burial proposal to make a judgment on
23 that?

24 MRS. KAY BEDELL: I haven't studied it
25 intensively. I've certainly read some of the material



1 that has been put out, but I also have heard criticisms
2 too and there can always be the underground water can
3 become contaminated and seepage can occur with the
4 sorts of excavations and drillings that will have to be
5 made. There could be cracks in the rocks somewhere
6 which could carry off eventually the poisons farther in
7 the field.

8 And so the Nuclear Association has a way
9 of making it seems so clean and so nice but it is such
10 a dangerous element and the waste that I would always
11 be sceptical about the safety.

12 MR. PIETER VAN VLIET: One further point.
13 In the various presentations it's often referred to as
14 being located in somebody -- some other community as if
15 it is -- want to be next to a populated area and yet,
16 we've heard others that said it should at remote sites,
17 as far away from population as it can be. My question
18 is, would your views change on the deep underground
19 disposal if it were in remote on inhabited parts of
20 Canada?

21 MRS. KAY BEDELL: Of course when we speak
22 of remote on inhabited, I wonder just how inhabited it
23 is. Certainly we know there would be animals around,
24 and we know that the native groups dwell in many of
25 these so called remote areas. So I don't think it



1 would be completely free from contaminating the life in
2 the area.

3 THE CHAIRMAN: Doctor Wilson.

4 DR. LOIS WILSON: I'd like to ask you
5 something around -- I mean you're a member of the
6 community, and I guess you've worked in the community
7 and while it seems obvious that the proposal's going to
8 be to bury this in the Laurentian shield, which is not
9 New Brunswick, I'd still like to ask you since we're
10 charged with looking at the criteria for the Community
11 Approval Process, what would you see there for -- what
12 would be the criteria for a community to approve itself
13 as a site?

14 I mean we've heard some quite bitter
15 experiences of communities that have felt their
16 Municipal Council sold them out and we've had -- some
17 recommend a referendum, which many feel it's
18 irresponsible because you're not going to inform
19 public. I mean what would be the methodology or
20 criteria that you would see for a community approval
21 process of site?

22 MRS. KAY BEDELL: Well, of course, I
23 imagine, I do believe there's a popular antagonism and
24 disapproval of nuclear power in the province that is
25 certainly so in my context and in organizations they



1 are not considered at all in anyway radical. But I
2 suppose there would be good many people think: "Good
3 winds get it out of here". I think that's the way a
4 lot of people would feel it they thought that were
5 going to be sent away. That's the way we usually do
6 things ...

7 DR. LOIS WILSON: How would that be
8 determined if people felt that? How would we know that
9 that's what people thought?

10 MRS. KAY BEDELL: Well, I suppose if there
11 were a non biassed effort to bring it to the attention
12 of community groups and that would certainly mean equal
13 funding for any efforts from people who would question
14 the nuclear policies.

15 As it is now, of course, everything as we
16 see on TV and in the schools, promoting the nuclear
17 way, and the opponents to development of nuclear power
18 have a great disadvantage in getting their ideas
19 across. And I would think there would certainly need
20 to be funding provided for a proper discussion of the
21 whole thing which would be free from the people who
22 stand to profit by a nuclear power. So I suppose there
23 could be an educational campaign to discuss such
24 things.

25 DR. LOIS WILSON: Okay. Thank you, that's



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1 all.

2 THE CHAIRMAN: Doctor Fyfe.

3 DR. WILLIAM FYFE: No more questions just
4 a comment to thank you for your presentation, very
5 much. And those of us on the Panel have had a lot of
6 discussions about the business of mandate, et cetera.
7 And following these scoping meetings, I think you --
8 the fact that another group may be set up to look at
9 energy. I think I can assure that we are very serious
10 about this. Thank you.

11 MRS. KAY BEDELL: I would just like to --
12 regarding that other group discussing energy, well
13 that's very good news because that's where we have been
14 falling short. We should have been developing other
15 forms and energy and not relying on this favoured
16 industry which is so polluting, and which has left us
17 with this terrible dilemma, what to do with the waste.

18 But surely, the Review should have taken
19 place before dealing with the present issue right now.
20 And if you note that I have mentioned that, that there
21 should be an opportunity to change the guidelines after
22 the energy the discussion takes place that you may want
23 to revise the scope of issues in you particular -- what
24 you are particularly working for in the environmental
25 assessment in a ways.



1 THE CHAIRMAN: Thank you very much for the
2 presentation and for the answers to pristine Mrs.
3 Bedell. Very good of you to come this morning.
4 ---Mrs. Bedell withdraws.

5 THE CHAIRMAN: May I ask that if there
6 other people present who would like to speak to us at
7 this morning session, if not, it remains for me to
8 thank you very much for turning out, for your
9 presentations, for your participation.

10 We will be resuming again at two (2.00)
11 o'clock this afternoon when there are a number of other
12 individuals who are inscribe to speak to us. Please
13 feel free to stay a bit longer for any informal
14 discussions you which to have either with members of
15 the Panel or with each other while you're here in
16 thinking of the subject. Thank you very much indeed.
17 ---Recess taken.

18 ---On commencing at 2:00 p.m.

19 THE CHAIRMAN: Good afternoon ladies and
20 gentlemen, and welcome to this afternoon session of the
21 Fredericton Scoping Meeting which is being held by the
22 Environmental Assessment and Review Panel on Nuclear
23 Fuel Waste Management and Disposal Concept.

24 The meeting will be conducted in English,
25 but you may feel free to make a presentation in French



1 if you wish and there is translation so that you may
2 listen in French to the translators through the
3 headsets which are available at the back of the room.

4 The members of the Panel who are with me
5 today are at this end doctor Louis Lapierre, professor
6 in the Department of Biology at the University of
7 Moncton, also Chairman of the Environmental Council of
8 New Brunswick.

9 To my immediate left, Mr. Pieter Van Vliet
10 of Regina, a mechanical engineer, who is also a member
11 of the Senate of the University of Regina.

12 To my immediate right, doctor Lois Wilson
13 from Toronto, President of the World Council of
14 Churches and Co-Director of the Ecumenical Forum of
15 Canada.

16 And to her right again, doctor William
17 Fyfe of London Ontario, a professor in the Department
18 of Geology and Dean of the Faculty of Science at the
19 University of Western Ontario.

20 My name is Blair Seaborn. I am Chairman
21 of the Panel and I reside in Ottawa. I'm retired, but
22 I served previously as Deputy Minister of the
23 Environment and Canadian Chairman of the International
24 Joint Commission.

25 The members of the Panel Secretariat here



1 are Mr. Greyell at the front table, and at the back of
2 the room Ms. Toller and Ms. Flanagan. They're all
3 there to assist you, to take your names if you've not
4 yet registered and would like to speak, and generally
5 to provide you with information about the meetings and
6 the process if you wish it.

7 The Review is being conducted in
8 accordance with Federal Environmental Assessment and
9 Review Process. The Panel has been asked in part to
10 examine the nuclear fuel waste management and disposal
11 concept, a proposal from Atomic Energy of Canada Ltd.
12 for permanent disposal of used nuclear fuel deep in the
13 granite rock of the Canadian shield.

14 I would like to say a few words about the
15 Panel's mandate. The terms of reference state that the
16 Panel is to review the safety and acceptability of that
17 concept, which I've just mentioned, the concept of
18 geological disposal of nuclear fuel wastes in Canada.
19 But in addition to the AECL proposal, we shall examine
20 a broad range of nuclear fuel waste management issues,
21 including long-term management, transport, and
22 environmental, social, and economic effects. We shall
23 look at the approaches to nuclear fuel waste management
24 and disposal being developed elsewhere in the world.
25 Since site selection will not occur until a disposal



1 concept has been accepted as safe, the Panel will not
2 consider any specific sites, but it will review the
3 potential availability of sites and the methodology and
4 criteria required for selection.

5 Let me say a word also about what is not
6 in our mandate, and therefore will not be addressed in
7 our review:

- 8 . the energy policies of Canada and the provinces;
- 9 . the role of nuclear energy within these policies,
10 including the construction, operation and safety of
11 new or existing nuclear power plants;
- 12 . fuel reprocessing as an energy policy; and
- 13 . military applications of nuclear technology.

14 These are outside our mandate.

15 I would like to make it very clear however
16 that the members of this Panel are very much aware of
17 the broader concerns related to the use of nuclear
18 materials and the use of nuclear power for the
19 generation of electricity. The Panel has been urging a
20 broader review of the comparative environmental
21 implications of the various methods of generating
22 electricity for some time. I'm pleased to have learned
23 quite recently that a process is now under way, which I
24 hope will get that review established before too much
25 more time has passed.



1 The Federal Department of Energy, Mines
2 and Resources has written to provincial Departments of
3 Energy and of the Environment, and to a number of
4 energy clients, and interested environmental groups,
5 seeking their reaction to some proposed terms of
6 reference for that broader review of the environmental
7 impacts of methods of generating electricity.

8 The purpose of these scoping meetings is
9 to allow participants to identify issues that need to
10 be addressed in the environmental impact statement that
11 will be prepared by AECL. We are not requesting the
12 presentation of opinions on the substance of the
13 disposal concept at this time. Public hearings will be
14 held later to discuss whether AECL's eventual proposal
15 is acceptable.

16 Following this present series of meetings,
17 the Panel will prepare draft guidelines for the
18 preparation of the Environmental Impact Statements.
19 AECL will take that as directives and will over the
20 course of the next year to a year and a half, I expect,
21 work on the preparation of the Environmental Impact
22 Statement, will then submit it to the Panel who in
23 turn will make it available to the public.

24 Once we are satisfied that AECL has
25 addressed satisfactorily all the items which we have



1 identified in the guidelines, we will be in a position
2 to hold public hearings. Participants will be asked to
3 discuss the acceptability of AECL's disposal concept in
4 detail at that stage of the review. The Panel will
5 consider all comments submitted to it and will, as the
6 final act of its activity, prepare a report to the
7 Ministers of Environment and of Energy, Mines and
8 Resources.

9 I would ask that those who've registered
10 to speak this afternoon, attempt to summarize their
11 concerns in fifteen (15) minutes unless they have
12 previously requested an additional ten (10) minutes.
13 We shall pay equal attention to written and oral
14 statements. I know some people have said that they
15 were not able to prepare a statement for these meetings
16 but they had something they wish to say and they will
17 be writing to us in due course and this is very much in
18 keeping with our practice and our obligations.

19 The Panel may, after each presentation,
20 ask some questions of clarification from the
21 participant. If any of you would like to make a
22 presentation and have not yet registered, would you be
23 kind enough to speak to any of the members of the
24 Secretariat who will be glad to get you on the list.

25 In addition we will accept the written



1 submissions which I've just spoken of, identifying the
2 issues and concerns, any time up until the end of this
3 month. That is until November the 30th 1990.

4 With this by way of introduction, could I
5 call on the first speaker for this afternoon, Mr.
6 Robert Young who is here to speak on behalf of Veterans
7 Against Nuclear War. Mr. Young.

8 REPRESENTATION BY MR. ROBERT YOUNG:

9 Mr. Chairman, members of the Panel, I'm
10 pinch-hitting for doctor George Beetz of St. John who
11 regrets he is unable to be here today. My comments are
12 very brief.

13 Veterans Against Nuclear Arms have not
14 interest in nuclear power generation and therefore no
15 direct interest in nuclear fuel waste disposal.
16 However, we do recognize the global implications of
17 nuclear technology. We feel that no community, be it
18 geographic, professional, commercial, economic,
19 national or political, should, in isolation, make
20 decisions which effect the Planet and the people who
21 occupy it.

22 We therefore recommend that the United
23 Nations be asked to supervise the Canadian Nuclear
24 waste disposal and storage project.

25 THE CHAIRMAN: Are there any questions



1 which we might wish to put to Mr. Young on that very
2 brief presentation? I think I might mention that it is
3 really only since we've come here to New Brunswick that
4 we've heard develop a new dimension of it as well, the
5 idea that a disposal of nuclear wastes is not
6 necessarily limited to a national but that it has some
7 global implications that's been brought out by more
8 than one of the participants in our meetings, and
9 that's a thoughtful comment. Are there any questions
10 which people would like to put to Mr. Young? Mr. Van
11 Vliet.

12 MR. PIETER VAN VLIET: Mr. Young, could
13 you give us any rational leading up to that
14 recommendation as to why United Nations, in your
15 opinion, should be supervising this? Is that because
16 you feel that there is nothing in Canada that could
17 look after this ...

18 MR. ROBERT YOUNG: Yes, I spoke to one
19 member of VANA who is very interested in the project
20 and who supports by the way the idea of burying the
21 material in the Canadian shield. His main concern was
22 the illicit disposal as has been discovered in the
23 disposal of other toxic wastes.

24 He mentioned or it came up in the
25 conversation that toxic wastes have been disposed of in



1 materials that are put on our highways. And he thought
2 this was a bigger concern and this crosses
3 international boundaries. Therefore, we feel there's
4 an international aspect of policing the disposal
5 against criminal element, criminal negligence, and
6 whatever.

7 Now, there are ways to sell toxic wastes
8 and make money because we don't know what to do with
9 them ourselves. Well, there's an underground, that
10 kind of involvement, there's a temptation to sell it to
11 the highest bidders who doesn't care how he gets rid of
12 it.

13 MR. PIETER VAN VLIET: I still have some
14 difficulty seeing where that could be supervised by
15 United Nations more effectively than by a Canadian
16 organization?

17 MR. ROBERT YOUNG: Well, I think perhaps,
18 the United Nations would involve other countries.
19 There was an example in Manitoba, I believe, where some
20 people who wanted to test the system of security, had a
21 truck with material marked "radioactive", and they
22 crossed the border from the United States and drove up
23 into Winnipeg with material leaking from these barrels
24 on the truck, which indicated they're radioactive,
25 which is the kind of thing that could happen if



1 somebody wanted to do it without official sanction.

2 Now, by crossing the boarder -- and we
3 know it was toxic wastes but they're being shipped to
4 foreign countries and they're being shipped illegally
5 and they are being dumped at sea illegally. So
6 hopefully the United Nations would bring a concentrated
7 policing action of all countries to stopping this kind
8 of transportation or disposal.

9 MR. PIETER VAN VLIET: I can see your idea
10 but I'm not sure that United Nations are adequately,
11 and well-equipped, and all pervasive to police those
12 kinds of actions?

13 MR. ROBERT YOUNG: Perhaps, as Veterans
14 Against Nuclear Arms, we see the policing role of the
15 United Nations very strongly and we regret that it is
16 not given more prestige by some countries. We feel
17 that only through United Nations, the Democratic United
18 Nations, can we, eventually, have world peace and solve
19 some of these problems which had become international
20 in pollution.

21 I think the very fact that fossil fuels
22 pollution knows no national boundary puts any kind of
23 toxic material into to that realm of we need something
24 more than national police forces and government to
25 control the problems that have arisen from them.



1 THE CHAIRMAN: Thanks very much indeed,
2 Mr. Young for your double duties on behalf of more than
3 one Organization.

4 ---Mr. Young withdraws.

5 THE CHAIRMAN: Could I call next on the
6 Canadian Medical Association, and I believe it's Mr.
7 Wilson -- is he making a presentation?

8 PRESENTATION BY DR. WILSON:

9 Thank you Mr. Chairman, Panel and members
10 of the public. It's a pleasure to able to meet with
11 the Panel.

12 Our presentation here from the Canadian
13 Medical Association is a national one. We are in New
14 Brunswick rather than Ottawa since a meeting of our CMA
15 sub-committee on Environmental and Occupational Health
16 is being held in Fredericton.

17 Not here today, but very interested is the
18 Chairman of that Committee is Dr. Don Morgan of
19 Fredericton. Other members will be coming into town
20 for this meeting over the next three days to discuss
21 this issue and others on a national basis.

22 With me is Dr. Robert Woollard from
23 Burnaby, BC, and Milson Toombs from our CMA office in
24 Ottawa who is a research and policy officer.

25 This comment we have, I believe,



1 circulated to you, and I believe you have a copy of
2 this on the Panel. We will speak to that today. These
3 are positions that have been brought forward from our
4 sub-committee but do not yet represent the full
5 approval of the Board of the CMA Board of Directors.
6 So this is working progress for discussion.

7 On behalf of the Canadian Medical
8 Association we are here to voice our concerns as
9 physicians and health professionals about the
10 environmental impact of nuclear waste disposal.

11 In doing this, we define environment
12 broadly to include:

- 13 - the human environment
- 14 - the human health interdependency within
15 the environment

16 We will not today express any opinions about the
17 validity of nuclear power itself, or provide cost-
18 benefit, risk-benefit analyses of various energy
19 alternatives. Regardless of the future of the nuclear
20 industry, we are faced with the problem of what to do
21 with our existing stock of high-level nuclear waste.
22 We must act to ameliorate risk from this waste, which
23 requires a very competent and complete Environmental
24 Impact Assessment.

25 We are framing our response with the



1 recommendations of the Brundtland report as our
2 foundation. The CMA is on record as accepting the
3 basic premises of this report. "Sustainable
4 development", one of those premises, must in the final
5 analysis mean the preservation of human life and
6 respect for the quality and equity of that life. One
7 of the recommendations of the Brundtland Report is that
8 the nuclear industry give the highest priority to solid
9 solutions to presently unsolved problems such as
10 disposal of high, intermediate, and low level wastes.
11 The problem of nuclear waste disposal must be solved to
12 the satisfaction of the environmental community, the
13 health community, and the general public.

14 PRESENTATION BY DR. R.F. WOOLLARD & DR. WILSON:

15 DR. WOOLLARD: The role of the CMA, I
16 think, needs to be elaborated a little bit further in
17 the context of what we see ourselves doing. We see
18 ourselves as advocates for the patient, advocates
19 thereby for the health of Canadians, the general
20 public, and specifically for the workers in the nuclear
21 industry that would be involved in this process.

22 We believe that we represent a profession
23 that has some credibility and perhaps some validity in
24 terms of being able to deal with issues such as this
25 where there is a significant degree of uncertainty



1 about some of the detailed technical aspects. But none
2 the less, a decision has to be made.

3 It's a position in which, as physicians,
4 we find ourselves very frequently having to make a
5 decision. We can never know enough about the
6 subtleties of human biology or the subtleties of a
7 particular individual patient. But our advice has to
8 be given even in the absence of absolute certainty.

9 And I think it's important that this Panel
10 in their scoping, recognize the important difference
11 between defining and quantifying a hazard which is
12 essentially a technical process of variant degrees of
13 expertise, and defining safety, which is essentially a
14 social decision.

15 And I think that the medical profession
16 can perhaps offer some expertise, both in defining the
17 hazards in expressing our concerns about the
18 limitations of the evidence and in terms of quantifying
19 those hazards. But perhaps also on the other end to
20 talk about safety and how people conceive of safety.

21 It's not a decision that can be made by
22 another group, no matter how august. And I think that
23 distinction is important and we can perhaps explore
24 that further at your discretion.

25 We feel there are a number of necessary



1 elements of an environmental assessment process. And
2 we have outlined those. Naturally, from our
3 perspective, we feel that health should be of primary
4 concern for a number of reasons. One because that is
5 often the motivating factor for the politics and the
6 decision making process with reference to environmental
7 hazards, certainly nuclear questions not least but
8 "promont" among those.

9 Secondly, it is our perspective because we
10 see these costs which are distressingly and frequently
11 quantified into the equations when decisions are made
12 regarding policies. This one in particular.

13 The analogy I would have, I guess is that
14 if one is building a large project, a bridge, et
15 cetera, one can't reasonably predict the number of
16 man-years of work lost and perhaps a mortality,
17 morbidity that might be associated with the work force
18 building that bridge. And society in general and
19 perhaps the decision makers may look upon that and say:
20 "That's acceptable because there's only two deaths out
21 of a thousand workers" providing employment in this
22 particular community. And they may see that as a
23 minuscule amount.

24 Physicians on the other hand look at the
25 perspective of saying "If there are a thousand man-



1 years involved in the project and we expect the
2 mortality of two", then we're going to see them, and we
3 are going to see them for sure. And we would contend
4 that that perspective while it should not necessarily
5 be all pervasive in terms of always taking precedent,
6 it should be heard from and is only infrequently done
7 so.

8 We have outlined to you formal and adopted
9 CMA policies in the area of management of hazardous
10 wastes. And I would refer you to that section of the
11 document, as feeling that any EIA process and the scope
12 of its considerations, should include the kinds of
13 things we've outlined such as public participation and
14 involvement.

15 Resolution of some of the jurisdictional
16 considerations between municipal, provincial and
17 federal jurisdictions, the three R's of reduction,
18 reused and recycling, which may or may not have a role
19 to play but certainly must be considered within the
20 scope of this body. The kinds of health studies that
21 we have outlined as being an important and appropriate
22 part of the risk assessment and ongoing monitory. And
23 finally that there should be a systematic approach to
24 it, that this should not be looked at in isolation.
25 And I was gratified by the Chairman's earlier opening



1 remarks indicating the broader perspective that
2 although -- that the Panel is taking although
3 recognizing the limitations of its terms of reference.

4 We feel that there should be a strong
5 component of expert ethical consideration we are all
6 amateur ethicists, but we feel that there are such
7 important issues of intergenerational equity, such
8 important considerations of the separation of the risks
9 and the benefits either geographically over time, or in
10 terms of sectors of society. And medically the
11 separation of risks and benefits is intuitively noxious
12 to us. That's an idea and therefore, it would seem
13 important to have that placed far most in your scoping
14 considerations again the feeling that this is not
15 strictly a technical exercise but involves much more
16 than that.

17 In terms of the actual process of risk
18 assessment, we do not pause as experts, but we
19 recognize that advances in modelling and advances in
20 cybernetics with a possibility of exploring those
21 modelling makes projective risk assessment perhaps more
22 of a reality than it was even ten (10) years ago when
23 it was assessed in detail by the California Board of
24 similar consideration.

25 But we feel that the methodology of risk



1 assessment must be part of your scope and not just an
2 acceptance that the art has -- and science have
3 extended to the point where truly valid predictions
4 over the time skills that we're talking about can be
5 made.

6 We want to reinforce what I think this
7 particular meeting represents, and that is the
8 importance of public involvement at every step along
9 the way. We have, I think as an organization
10 previously expressed our concerns that there are
11 significant elements within the AECL community that
12 appear to feel that this -- the technical aspects of
13 this waste management problem have been solved and that
14 it's really a public relation's problem. We would
15 submit that it's manifestly not the case. And the
16 importance of having active involvement of our patients
17 into consideration is extremely important.

18 The importance of looking at health,
19 indicators in health outcomes in both an occupational
20 sense and in a general public sense. Again, we need to
21 emphasize.

22 DR. WILSON: Some more points on what the
23 scope of the EIA should include. We feel that the EIA
24 must document the methodology for worker safety
25 procedures in detail. This is a new occupational



1 health assessment. If workers in the proposed new
2 waste disposal field are to be encouraged, then both
3 perspectives from labour and management and
4 occupational health professionals should be involved in
5 a complete development of our understanding of what
6 this new sector would entail.

7 Provisions for revising this occupational
8 health statement and document should also be included.
9 How do you update and how do you regulate this area,
10 should be included.

11 And EIA must examine the risk of any
12 eventualities that could occur and these have been
13 modeled in to some extent, some public information has
14 been made available about these but it is not, at this
15 point, very specific, so we have to get into specifics
16 of these, such as for instance, the containment and
17 containments break. A general number of conditions
18 over a long period of time and have to be explored in
19 detail.

20 The transport, again, their various
21 methods have been suggested, but there is not real
22 specific on this as yet because we don't quite
23 understand where sites might be and what that might
24 relate to in terms of the transportation facilities
25 that exist or new transportation facilities that would



1 have to be built especially for this purpose.

2 Then, there are of course a lot of
3 questions about the storage site integrity and security
4 that -- as under the current proposals -- will require
5 a great deal of research over a period of time.

6 The EIA must propose disaster planning
7 options and insure that they are within the current
8 capabilities in coordination of emergency measures that
9 might need the coordination across provincial borders
10 and the federally, of course because transport,
11 presumably, would be coming from a number of sites and
12 a number of different routes and this would be perhaps
13 a more complicated exercise than those which currently
14 exist within provincial emergency measures.

15 The EIA should include a thorough study of
16 ground water, dynamics and permeabilities, and this is
17 a very difficult and new area I think to determine the
18 factors that would occur in the deep sites as proposed
19 over a great period of time. And this research would
20 have to be convincing and complete.

21 The assessment should address the issue of
22 monitoring who will do it and to what extent. We
23 recommend annual reviews of site-safety and the health
24 status of the community and the land itself preferably
25 by an agency independent of AECL. The independence



1 factor here I think is one of the things that will
2 determine the credibility of the whole exercise.

3 Finally, though the EIA must not be
4 rushed, nor should it be prolonged indefinitely out of
5 political considerations. There has to be some
6 coordinated national accord to proceed, and we suggest
7 with this to proceed with the EIA certainly in the next
8 three (3) years.

9 To conclude, the medical profession's
10 experience is one of regular lessons in humility in
11 the face of both the fragility and resilience of the
12 human race. Because of human fragility we recommend
13 the use of utmost care in assessing the effects of
14 nuclear waste disposal. Because of its resilience we
15 recommend looking at all options when considering
16 energy for the future, rather than dismissing nuclear
17 energy out of hand.

18 The scope of the EIA must recognize that
19 only a most complete and sensitive process, that
20 incorporates the health and environmental concerns of
21 the community, will succeed in enhancing the
22 acceptability and safety of the nuclear industry.
23 Conversely, an EIA that is not seen to manage waste
24 disposal issues effectively will certainly provoke deep
25 public anxiety about nuclear energy in general. It



1 will probably deepen it. In order to make the most
2 efficient effective and healthy use of all our
3 potential energy sources, we urge you to consider the
4 question of nuclear fuel waste management with the
5 utmost care.

6 THE CHAIRMAN: Thank you very much indeed.
7 Sorry you have ...

8 DR. WILSON: No, I was just going to say
9 the appendix attached refers to the generic issue as it
10 ...

11 THE CHAIRMAN: Which you referred to in
12 the presentation?

13 DR. WILSON: Yes.

14 THE CHAIRMAN: Well thank you very much,
15 doctors Wilson and Woollard. This is the first
16 submission we've had from the medical profession as
17 such, we have had at least one medical doctor with us
18 but bear in mind here that you are doing a lot of work
19 on it.

20 You know that the presentation which
21 you're giving us now and the thoughts you're giving us
22 are at the stage of ongoing work within the CMA. I'm
23 very grateful to you that you've seen fit to
24 communicate to us at this stage of your thinking,
25 that's helpful to us. If at some -- at a later stage



1 this gets further blessing or any modification of your
2 thinking at the present time, we would appreciate being
3 informed of that, so we would be right up to date on
4 what you can contribute us in association to our
5 deliberations. You might just keep that in mind.

6 Could I ask the members of the Panel if
7 they would like to put any questions to our two
8 participants? Doctor Lapierre.

9 DR. LOUIS LAPIERRE: Thank you very much
10 for your presentation. On page five (5), number one
11 (1) you indicate in health considerations, the
12 physical, mental and emotional. I wonder if you might
13 care to expend upon the mental and emotional factors
14 which we should consider addressing in our demands to
15 the AECL?

16 DR. WILSON: Misperception of course is a
17 highly individual issue as I'm sure you're aware from
18 the people that you have already had before your. And
19 the concept of safety is, to say the very least,
20 extremely complex because safety involves not only
21 issues of personal health but also health of future
22 generations and how much you're concerned for those, et
23 cetera, it is different.

24 I think that the specific question is to
25 what the responsibility of this Panel would be in terms



1 of its scoping might be, for example, to understand
2 more completely how an individual society, a community
3 identifies those particular hazards that it wishes to
4 be concerned about and how it decides whether or not
5 the risks that are associated with them are
6 significant.

7 So for example, when it gets to the siting
8 stage that's going to be a very real issue because
9 there are going to be anxieties associated with that.
10 I would submit that most commonly these anxieties are
11 dealt with in a rather cavalier and paternalistic
12 fashion.

13 And that in fact, if the process that you
14 build in to your EIA, follows the principles that we
15 have outlined, that in fact the public will be involved
16 from the very beginning and hence less likely to be
17 reluctant to participate, reluctant to allow their
18 particular site to be considered because of an anxiety,
19 because of very real anxieties associated with that.

20 I don't know if that answers your specific
21 question. I think the main thing is to avoid the sort
22 of paternalistic approach that says: They're their
23 children everything's OK, but rather to involve them.
24 Because in extension of the World Health Organization
25 definition of physical, mental and emotional well-



1 being, in addition to that there's the concept of
2 empowerment, that in fact the community feels empowered
3 to be involved in a decision that affects its future
4 and I think that part of health is very often forgotten
5 in the process.

6 DR. R.F. WOOLLARD: If I may add just an
7 additional perspective, in the public health field,
8 particularly this is the community and broader aspects
9 of human health and medicine, there's a great deal of
10 discussion going on at the Conference these days with
11 respect to the triad of the interrelated aspects of
12 health, the environment and the economy. And you
13 really can't separate these, they're so "intercully"
14 connected in society so that if there's an economic
15 down turn that impact on physical and emotional health.

16 It may also impact on the environment as
17 we're less likely to spend money on cleaning up during
18 a time of environmental crisis, priorities are
19 elsewhere.

20 So these three areas, and these are the
21 things that people in communities are worried about.
22 And sometimes when you pull these, some people will
23 say: "Well human health is our most important concern.
24 It's ourselves and it's -- we are worried about our
25 kids with these new projects and this transport of this



1 stuff." These are the major things.

2 Then others will say: "Well, it's really
3 the environment we're worried about because that's what
4 determines our health". Others will say: "Well, right
5 now it's the economy, if we all had jobs, if we were --
6 can confirm our economic standing then we would be able
7 to look after our health and the environment".

8 But really, I think, what we are getting
9 to at this point is that the more sophisticated
10 approach to this understands that all these
11 interrelationships are important.

12 What it means to me is that in our
13 thinking, as we look at this, is that we're really not
14 doing an environmental impact assessment. What we're
15 doing is an environmental health and economic
16 assessment in the final analysis because all of those
17 things are interrelated. So this is not the question
18 the preeminence of the Department of the Environment
19 related to the Panel and calling this an Environmental
20 Impact Assessment, but it really is an environmental an
21 health impact assessment in our view. And the economy
22 and the social structure depends on that
23 "interrelatadeness".

24 THE CHAIRMAN: Mr. Van Vliet.

25 MR. PIETER VAN VLIET: On page seven (7),



1 you indicate that you address the issue of monitoring
2 that should be done preferably by an agency independent
3 of AECL. And you mentioned something to the effect
4 that would add to the credibility. Could you elaborate
5 on that?

6 DR. R.F. WOOLLARD: I think you are
7 familiar with this type of thinking as well and in very
8 often -- many of the public groups will feel that AECL
9 is really the agency that has developed the nuclear
10 industry in Canada and really has such close ties to
11 the development aspects of it that it makes it
12 difficult for them to in a sense police itself.

13 There are ways of going about this in the
14 United States with the Environmental Protection Agency.
15 In other countries with more independent councils which
16 are representatives of people in a number of sectors,
17 in the Health sector, the Environmental sector, the
18 Research Sector, the Government sector, those type of
19 council says as in a way your Panel is, bringing people
20 together from different constituencies, may give a
21 better sense to the public that all of the concerns,
22 rather than one particular sector involved in the
23 development of the industries, is doing the monitoring.

24 I see no reason for instance why the none
25 government National Associations of Medicine and Public



1 Health, for instance, could not be involved in such a
2 process. At least that the management and advisory
3 level, I think there is room for such a council, rather
4 than put it all in one agency which has strong ties and
5 such strong ties to the development and people would
6 question whether both government and AECL would have
7 really a vested interest in the decision making.

8 DR. WILSON: Let me add briefly to that
9 lack of independence and -- may be extended in both the
10 nature of the monitoring and the concepts surrounding
11 monitoring because we have to keep in mind, as we elude
12 to later, monitoring and particularly for health
13 effect, is going to be extremely difficult, to say the
14 least, over the time-frames that we're talking about.
15 And so much of the monitoring we're talking about in
16 the immediate sense relates to the worker exposure and
17 so on, associated with that.

18 I think that we all have to recognize that
19 the public confidence in the Atomic Energy Control
20 Board as a regulator, has been compromised in a number
21 of significant areas and as what eluded to just now.
22 And I think that it will be extremely important when
23 we're talking about something that has this kind of
24 sensitivity into generational problems that that be
25 unquestionably pure reviewed, unquestionably socially



1 reviewed in a very independent way.

2 MR. PIETER VAN VLIET: How would you
3 extend that to the whole disposal process or do you see
4 that -- really confined to the monitoring phase?

5 DR. WILSON: I'm sorry, I don't quite
6 understand the nature of the question.

7 MR. PIETER VAN VLIET: In terms of an
8 independent agency carrying on those responsibilities
9 you said for monitoring, would you extend that to the
10 whole disposal methodology, the whole process or is it
11 just the monitoring that you considered?

12 DR. WILSON: No, I think it extends to the
13 whole process and I would suppose that, to some extent,
14 this Panel is in attempt to represent that degree of
15 independence.

16 THE CHAIRMAN: Doctor Lapierre.

17 DR. LOUIS LAPIERRE: On page six (6) of
18 your report, you speak of "anxiety and damage to the
19 social and personal well-being in a given community
20 under environmental distress or perceived stress." I
21 wonder if you could give us some indications of what
22 you would think health indicators to the general public
23 might be? What are the indicators we should look for
24 in such a situation?

25 DR. WILSON: The short answer is that



1 those indicators have not been yet defined well enough
2 that you can rely upon them. And it's perhaps a very
3 fruitful area of investigation and proposed research to
4 look at such things.

5 I am somewhat familiar with the literature
6 as regard's health indicators and there are some areas
7 of research which show some promise. What we have to
8 keep in mind is that the traditional rather crude
9 measurements of mortality morbidity then even to some
10 extent disease surveillance registries have a
11 relatively limited role whereas other health indicators
12 which may relate to measurement of total body burden of
13 a particular by a chemical or toxic substance, they may
14 relate to community measurements of the number of
15 hospital visits or hospital days. They may be
16 represented by specific disease patterns developing in
17 the community and the necessary surveillance related to
18 them.

19 All of those things may have to be
20 focused. Now what we are suggesting is that, at the
21 scoping stage, that area of research needs to be looked
22 at, needs to be considered. And we will certainly be
23 considering that and we will be proposing as time goes
24 by, I'm sure, some specific measures that may be we're
25 looking at. It's an easier thing to say than do. I'm



1 sure, as a biologist, you can appreciate that.

2 DR. LOUIS LAPIERRE: That was the reason
3 for my question, I find that quite difficult. And I
4 think if you extend those onto the emotional side then
5 there's also, I guess, indicators that could be
6 developed too?

7 DR. WILSON: Yes. A difficult but not an
8 impossible task is the point I want to make.

9 DR. WILSON: Oh, I understand that.

10 THE CHAIRMAN: Doctor Wilson.

11 DR. LOIS WILSON: I have two questions I'd
12 like your comments on. I welcome particularly two (2)
13 emphasis in your presentation. One is on page five
14 (5), in terms of the need for stronger component of
15 ethical considerations and you've noted two (2) issues.
16 I'm wondering if you have additional ones that you
17 could identify for us in there?

18 And the second question has to do with
19 the, in my view, very excellent interconnectedness
20 between health, economics and environment. So it's a
21 holistic picture we're at. And you've mentioned twice
22 I think on page six (6) and page eleven (11), the
23 protection of the land itself. Could you say something
24 about that? So there's two questions: one around -- do
25 you have anything you could add to the ethical section,



1 and what do you mean by protection of the land itself?

2 DR. WOOLLARD: On the first question
3 regarding the ethical considerations, this is an
4 interesting one. I think medical opinions are getting
5 more and more complicated with all due respect to
6 ethical analysis. We've just gone through an exercise
7 at the CMA where the entire board of directors went
8 through a submission to the Reproductive Technologies
9 Commission.

10 So they are in a similar position to
11 yourself asking questions about society. They're very
12 complicated and of course we will determine some
13 direction for generations to come.

14 And it's the attention between what the
15 individual problem is, what the couple problem is. And
16 what the community believes is the right thing to do in
17 these reproductive technologies.

18 It's exactly the same situation as we see
19 with the environmental technologies. As they develop,
20 we have problems. We have problems that are -- that
21 may be a direct benefit, but also may be a direct cost
22 and risks.

23 DR. WILSON: Through our experience in
24 looking at that, we have benefited greatly from expert
25 ethical opinion, which really is a -- it's certainly



1 got a great deal of scientific and professional
2 expertise that is not well developed in the general
3 medical profession, but it has to be enjoined in one we
4 consider these two (2) to help us understand, to
5 understand what to do with these complicated issues.

6 So that I think, environmental assessments
7 have gone from the bio-physical to begin to understand
8 the human health and I think they have to go further,
9 which is to explore the areas of human ethics. And I
10 believe that this professional ethical opinion would be
11 of great assistance to ourselves in understanding the
12 health and also to yourselves as well.

13 So I think we take the environmental
14 impact a long way down this road when it comes to
15 looking at something that will be fairly significant.
16 I think that society has to make a big choice in terms
17 of how much energy we want and where do we want to get
18 it from and how do we deal with all the ramifications.

19 And again, it's fundamental to our
20 economy, it's fundamental to our health and to our
21 environment. This is a very large decision. I mean we
22 also -- as the Chairman pointed out -- are very happy
23 that there seems to be another process on the way which
24 is a larger process than the waste disposal and it's
25 going to be -- to make appropriate energy choices. And



1 perhaps that is the key forum to explore these issues
2 in a broader context, I would think. So we would agree
3 and we would hope that the CMA also will play a strong
4 role in that process.

5 In terms of the issue of the health
6 related to the land itself, I would suppose there are
7 two aspects of that in terms of health. One is the
8 very practical aspect that the romans demonstrated at
9 Carthage that is: You destroy the land, you destroy the
10 people. And we're certainly seeing environmental
11 impacts from the green-house effect and from climatic
12 changes.

13 In SubSahara, Africa, for example where
14 the -- you know, we can see images every day on
15 television of the very direct health impacts of the
16 destructive elements of environmental impact on the
17 land, negative environmental impacts on the land, but I
18 think there's another part of it which may get us back
19 again to the issue of anxiety if you will, and that is
20 that I think that there is a spiritual connection with
21 the land, and I'm not speaking specifically of
22 christian or other spiritual, but a spiritual
23 connection that I think most cultures have some
24 connected us with. And I think we're seeing elements
25 of that in a lot of -- what is coming forward from our



1 native brothers right now.

2 And that part I think we can't forget when
3 we look at the health of our society. So you sit both
4 the practical and the spiritual connection with the
5 land that are important and need to be dealt with. I
6 don't know if that answers ...

7 DR. LOIS WILSON: Yes, thank you.

8 THE CHAIRMAN: Doctor Fyfe.

9 DR. WILLIAM FYFE: I'm quite intrigued by
10 something, given the Canadian Medical Association and
11 this sub-committee on environment and health. On your
12 first page, you say: "The CMA is on record as accepting
13 the basic premises of this report", that only one thing
14 matters, human life. Do you really believe that? I
15 mean this is the failure of the Brundtland report is
16 100% anthropocentric. Yet the world we live in is
17 not -- is extremely diverse. And this one really
18 worried me when I read it.

19 DR. LOIS WILSON: He answered on what I
20 asked.

21 DR. WILLIAM FYFE: Yes. He said the final
22 analysis the preservation of human life, et cetera,
23 et cetera -- all that matters.

24 DR. WOOLLARD: No, I think we interpret
25 it, we put that down into the comment being the final



1 analysis. I mean that's a final end point which we're
2 very concerned about. But certainly, I think we're
3 also very concerned about the whole biosphere ...

4 DR. WILLIAM FYFE: Could we take human
5 out?

6 DR. WOOLLARD: Well ...

7 DR. WILLIAM FYFE: If we said life I think
8 we would be on a good track! If human are more
9 important than anything else, I want to know.

10 DR. WOOLLARD: You can interpret that way,
11 but I think in the practical sense ...

12 DR. WILLIAM FYFE: Because if this is so,
13 the system will collapse.

14 DR. WOOLLARD: We're very concerned that -
15 - we've probably heard the -- we're in a position of
16 considerable power in making these -- and I mean, we,
17 the humans, are in considerable power and therefore
18 have responsibility. And I think that probably human
19 health concern will be put ahead of the other concerns.

20 But I would also, for the record, on my
21 part, certainly say that all of the other things that
22 we see decaying perhaps more quickly than ourselves in
23 terms of numbers are extremely important.

24 So we've -- when we hear and we read and
25 we talk about this on our committee in terms of the



1 whales, the elephants, the food-chain and the frogs,
2 these are upsetting in the ecological sense. I think
3 they're going to cause more public upset because they
4 may be seen a steps along the way to destruction of
5 human health.

6 So I think in practical terms, again,
7 we're charged with human health more than the other
8 species. However I think it's all again interrelated.
9 If we don't understand why suddenly a key and sensitive
10 part of the ecosystem such as the frogs suddenly begin
11 to disappear everywhere, this may be again very
12 alarming and we don't know what's going on.

13 So, I would agree with you that I think
14 there is a sense that we're all kind of partners in an
15 interrelated way in this world.

16 DR. WILLIAM FYFE: I would hope when we
17 see the next edition that the human -- and one thing is
18 becoming -- you mentioned, it's very clear that frogs
19 are very positive economically!

20 DR. WOOLLARD: I guess I might ask the
21 Panel, is this within the terms of your reference!
22 Perhaps it should be.

23 DR. LOIS WILSON: That's precisely why I
24 asked the question about the land when I saw that so
25 obviously that it's a contradiction.



1 DR. WOOLLARD: It does raise an
2 interesting question, I suppose theoretically our
3 studies and your deliberations could indicate that the
4 greatest gift that the human species could give to the
5 world is its own demise and it would be interesting to
6 see how we would deal with that issue.

7 Certainly a number of primitive cultures
8 have dealt with it in a highly ethical way. I'm not
9 sure we're up to that.

10 THE CHAIRMAN: You mentioned, doctor
11 Woollard, a little bit about health indicators are
12 important to the fact that, well, they're not easy to
13 come by. There is some guidance which we can have
14 there I believe who indicated that you're doing more
15 thinking and work on that. Again, if you take that a
16 little bit further, particularly in this area of health
17 indicators, please make sure it gets pass through to us
18 we will find it helpful.

19 Of course when looking at that it does
20 take you back a little bit to ask a question and
21 perhaps you can comment on this. What do we have of
22 adequacy by way of base-line studies and
23 epidemiological data, points from which we can measure
24 and say with some assurance: this is what has changed
25 and this is probably what has caused it to change. And



1 that's a very big question, I know, but is there any,
2 at least, initial comment you could make on that?
3 Because there has been a certain express about?

4 The adequacy of our based-lines and how
5 much we have by way of the epidemiological data to
6 guide us in this very difficult area. Would either of
7 you care to comment on that?

8 DR. WILSON: Without commenting on the
9 specific quality of the data that's available, I would
10 say that you are working in an area where some of the
11 best data is available in terms of long-term exposure
12 records, in terms of leakages with particular
13 occupational exposure, and again with longitudinal
14 study.

15 So among the better data in the world is
16 related to the nuclear industry but it doesn't indicate
17 that it is within itself capable of giving at the
18 present time meaningful answers in terms of the time
19 frames that you're talking about. And the way in
20 which, the complex way in which exposure can take
21 place. It's one thing to say we're going to measure
22 the amount of ambient radon in an uranium mine and we
23 have some idea of what the brake-down products are, how
24 did it deposit in the lung and so on. It's quite
25 another thing to say that we're going to put this



1 witch's brew which may come, you know, into the ground
2 in some location, which may come out in unpredictable
3 concentrations, somewhat unpredictable concentrations
4 because some -- the chemistry of certain of the
5 elements is such that they're going to move both
6 physically and biologically different, at a different
7 rate than some others.

8 And that's where you get into the
9 complexity, it seems to me in this regard is, number
10 one the exposure data and then secondly, predicting
11 what kind of exposures you're going to be talking about
12 in the future.

13 Now, the superficial thing would be to
14 say: Well, wouldn't it be nice if we had some sort of
15 none specific measurement of human health that would
16 say: Yes, things are going bad and we better do
17 something about it. But as I think you can appreciate
18 in the context that you're dealing that sort of like
19 closing the barn door after the horse is gone. I hope
20 that helps to frame it.

21 Just a further comment on the
22 epidemiological research probably the best data basis
23 in Canada related to cancer rates. Cancer is a well-
24 organized service in most of the provinces with respect
25 to collection of information under regulation.



1 And if you take the Ontario Cancer
2 Research and Treatment Foundation which has perhaps
3 five or six expert epidemiologists at any given time
4 working on the ongoing rates, one would think that the
5 rates related to any particular geography in Ontario
6 would for instance be well covered so that I think
7 we're getting into an area where there are pilot
8 studies that need to be replicated, looking at the
9 cancer rates, another disease rates around nuclear
10 generating facilities, and this is going to be a hot
11 topic for a discussion and you've probably found this
12 out already in your deliberations where studies are
13 reputed to show or not to show various effects.

14 We think it's early in this
15 epidemiological type of research. The foundation
16 should be there to do some analysis from ongoing
17 existing studies in Canada. And they're well linked
18 together with the National Cancer Institute, if any
19 area of human health is studied then that one probably
20 has the best data basis.

21 But these are not perfect again, and they
22 are not going to be sensitive to changes to take a long
23 time to occur in small numbers. Particularly if in
24 your particular frames of reference we're you've got a
25 remote site in mind siting wise you're going to have



1 very few cases of whatever and very small communities
2 hopefully to deal with.

3 So this would make it very difficult to
4 sense any changes in human health in any case.

5 THE CHAIRMAN: Thank you. I was going to
6 follow up with just that but you've anticipated the
7 problem of small numbers to give you a reliable answer
8 ... a reliable data. Thank you.

9 DR. WILSON: Sorry Mr. Chairman, in that
10 regard, I feel as a denizen of a city of two million
11 people, which a hundred years ago was virtually on the
12 fringes and probably on the hit list for a nuclear
13 repository where were they looking for and I think that
14 the Panel needs to be acutely aware that predicting
15 populations hundred of years into the future is a very
16 dangerous and slippery ground.

17 THE CHAIRMAN: Mr. Van Vliet. Follow up
18 question?

19 MR. PIETER VAN VLIET: Yes, if there's
20 such a well documented data base on the effects of the
21 nuclear industry, why is there such high fear factor in
22 the population as we have had expressed to us in terms
23 of the ill effects of even the most well contained
24 disposal of nuclear fuel waste as one of the most
25 controlled substances on this earth?



1 DR. WOOLLARD: A. I think the public
2 reaction is totally unrelated to scientific data basis.
3 Scientific big data basis typically are understood by
4 scientists, they're not well communicated to the
5 public. But this is the point that risk communications
6 is often underplayed or mishandled. It's done in sort
7 of secrecy: We'll let them know what the limited amount
8 of information that we think they should have. And the
9 public reacts strongly to the whole process. It is a
10 very complicated area again.

11 I think we've learned to understand that
12 there's probably some basis for real bio-physical risks
13 through our risk assessments but then there's perceived
14 risk, there's not only one category of perceived risk
15 but there's several sub-categories and many approaches
16 to that. Some people can be feeling exaggerated risk
17 for some reason that they want to express an
18 exaggeration because they think in fact that other part
19 of the triad environment that is "can I sell my house
20 near to this thing". That's the economic part of the
21 trend. That motivates them to exaggerate their
22 concerns.

23 On the other hand, some people want to
24 down play that because they believe on the economic
25 sector there'll be positive things for them in it so



1 that they perhaps underestimate the concern for
2 themselves as a human and for their family.

3 So there are many different explanations
4 for human behaviour. None all of them are predictable
5 and understood. I guess we feel that, you know, that
6 this is perhaps where more people have to play a larger
7 role. But for Government to come at us with the
8 economic message whether it's a tax or a benefit, this
9 is, as we've seen very recently not a popular thing to
10 do with the public. The public doesn't quite
11 understand why it should be hit with this at a
12 particular point in time and also for the industrial
13 sector to come at us and say: "Well, we need this plant
14 or we need this activity for a good industrial reasons,
15 you know, we'll be giving you jobs, etc ..."

16 I think the public understands that this
17 is of limited credibility in some instances as well.
18 So I think the more people that are enjoying the
19 process of the game participating in the discussion
20 about risk omits participation in terms of
21 communication in teaching an
22 education in the community if the vital part of what we
23 all have to do.

24 MR. PIETER VAN VLIET: Does the CMA have
25 a role to play in your opinion in the determination of



1 the studies?

2 DR. WOOLLARD: We could play a very good
3 role in that. It's something that we have thought
4 about a great deal. That's something we do every day.
5 People come in with anxieties on one to one basis they
6 go out with anxieties but on the other hand we also are
7 sensitive to the public health so the medical
8 profession has community officers in medicine at the
9 provincial level and at the national level. So I think
10 we cover all of the levels that you might want to look
11 at.

12 And through our membership again we've got
13 some mechanism for communication, publication and
14 meetings on a regular basis. We have standing
15 committees on this, etcetra. That is not to say that
16 we would believe that we would be, you know, a
17 predominant influence.

18 Again, I think the point is that there
19 have to be many sectors. What about the teachers?
20 What about the nurses? What about -- if a lot of the
21 professional people can be brought into this in a
22 council of concern on environmental issues and how to
23 communicate that and I think we're better off.

24 You know, I think, we've often in the
25 medical profession are been accused of trying to form



1 opinion too much on a certain health issue we heard
2 somebody said it's too important to leave to doctors.
3 Well I think things like environmental health, I think
4 the people in radiation, physics or -- some of these
5 people had too much responsibilities put on them in
6 terms of communicating to the general public.

7 There are natural communicators in the
8 community and the health field in particular we
9 certainly want to play a stronger and stronger role.
10 But that's what we're trying to develop as a program of
11 CMA.

12 Mr. Chairman, just an additional point
13 because I think that the CMA does have a role that was
14 very ably outlined. I wouldn't like however to leave
15 the Panel with the "canard" that in fact radiation is
16 such a boogie man because you can't smell, feel and
17 taste it.

18 It fact, the concern is not irrational
19 because although we stated quite correctly that some of
20 the best data is available, the industry, particularly
21 in the mining end has not translated that knowledge
22 very rapidly into an effect of regulatory apparatus?

23 And ongoing data has consistently, over
24 the last 50 years, led to an increasing realization of
25 the sensitivity of the biological systems to the effect



1 of ionizing radiation. There are very few in fact one
2 can cite on the fingers of one hand, instances in
3 which regulations have been loosen has opposed to
4 tightened on the basis of knew knowledge, and that's
5 new scientific regulatory knowledge, not necessarily
6 new anxieties.

7 And as recently as the last six (6)
8 months, some rather disturbing data was published in
9 the very prestigious British medical journal The
10 Lancet, that would indicate that perhaps there are
11 areas of malignancy that are related to the production
12 of nuclear power in Britain, areas that had not been
13 previously appreciated and not been previously looked
14 at. We were perhaps looking at the wrong indicators.

15 So I wouldn't like the Panel to be left
16 with the idea that somehow this is an irrational fear
17 on the part of the public.

18 The public is sophisticated, the industry
19 is sophisticated. It gives us, I think, a wonderful
20 opportunity to make some meaningful decisions that
21 we're going to have a generic spill over it to other
22 issues in the environmental area.

23 THE CHAIRMAN: Thank you both very much
24 indeed for your presentation and for the thoughtfulness
25 of the answers that you've given to the questions which



1 we've put to you. It's been, I know, very helpful to
2 us and to all those who are following are
3 deliberations.

4 ---Pannel withdraws

5 Could I call next on Ms. Anne-Marie Dupuis
6 who I'm told has arrived from Sussex. You gave us a
7 word that you were a little late getting away but we're
8 glad that you're here. Please go ahead.

9 PRESENTATION BY MS. ANNE-MARIE DUPUIS:

10 Bonjour, bienvenue en Acadie, good
11 afternoon. Micmacs, acadiens et anglais. Suffit que
12 j'aie quinze minutes de votre attention, j'aimerais
13 vous demander s'il y a quelqu'un d'entre vous qui est
14 autochtone? Are there any members here on the Panel
15 that are indigenous?

16 THE CHAIRMAN: Not from the Panel.

17 MS. ANNE-MARIE DUPUIS: J'aperçois aussi
18 qu'il y a seulement une d'entre vous qui est une femme.
19 The rest of you are men. Is this an example of a just
20 society? Seeing as the world population is comprised
21 of 51% female and 49% male, seeing as the status quo
22 has continued to be dominated by the male gender to the
23 point of being top heavy and bringing forth the
24 collapse of the sustainable communities, isn't it more
25 than time to switch.



1 Fini le concept d'égalité. Pourquoi pas
2 avoir un homme et quatre femmes comme membres de cette
3 Commission? Why not have one third indegenous, one
4 third francophone, and one third anglophone panel? Why
5 not be creative? Après toutes les tensions de notre
6 long été indien à Oka, pourquoi pas?

7 Why not be responsible and refuse to be
8 part of this faulty wheel. The writing is on the wall.
9 If any of us have any difficulty in reading it tutoring
10 abounds, for remember this is the year for literacy.

11 Le bon sens nous dit que l'on ne peut pas
12 regarder au sujet des déchets de combustibles
13 nucléaires sans éliminer la production d'énergie
14 nucléaire.

15 When the Chair here tells no, assures New
16 Brunswickers that, and I quote: "There is not a lot of
17 accumulated waste in Canada to date" as quoted in
18 yesterday St.John's Time Globes. Then we read another
19 article in the same paper that the Pointe Lepreau Plant
20 has eight hundred (800) tons of radioactive wastes in
21 storage right now, what an assault.

22 This is like saying that PCB's are so
23 benign as to disregard the accumulated stuff, when we
24 know of the extensive damage a minute quantity can
25 cause.



1 You and I, ladies and gentlemen, along
2 with everyone in this room, this building, this city,
3 this province, this country and this beautiful small
4 planet of ours, we are the people.

5 Mr. Seaborn if it is true that there is no
6 rush as was quoted in the aforementioned newspaper
7 article, then go back and tell the appropriate other
8 cogs that the terms of reference simply have to be
9 changed to accommodate and address the people's
10 concerns.

11 Vous êtes en train de percevoir une vue
12 d'ensemble. J'apprécierais fort que vous vous y
13 mettiez. I trust that these cogs will grasp the larger
14 picture and stoically rearrange this wheel.

15 Believe in our true human nature to be
16 loving, intelligent, elegant and zestful. Rappelez-
17 vous de la bravoure de Jeanne-d'Arc et de Gandhi. Do
18 you all understand French?

19 THE CHAIRMAN: If there are any who do
20 not, I follow it but not completely, I think most of
21 the other panel members do. If not they certainly can
22 borrow the "écouters".

23 MS. DUPUIS: Okay.

24 THE CHAIRMAN: But I think they have
25 enough to get to follow you. Thank you very much.



1 MS. DUPUIS: I expect the terms of
2 reference to reflect all those omitted thus far and to
3 also include the impact of living our live with this
4 kind of waste. The psychological and physiological
5 stresses not to mention the crippling environmental
6 stress have to be addressed.

7 Recently, visitors from Central America
8 came to our beautiful country, looked around, talked
9 about their plight. Then, told us that the kind of
10 stresses we are facing far outweigh theirs.

11 They went back home with a feeling of
12 empowerment and the knowledge that they can deal with,
13 sorry, and the knowledge that they -- that what they
14 have to deal with is nothing in comparison to our
15 dilemma.

16 Their children may suffer greatly, but
17 they know what they're up against. Our children, on
18 the other hand, grow in the dark and we, grapple to
19 realize what we're up against. Insidious this nuclear
20 business.

21 We are asked to speak not of this evil,
22 hear not of this evil and to not see this evil.

23 As proposed hosts, we are asked to smile,
24 relax and enjoy this senseless rape. In closing, I
25 offer you a solution, which I believe has not been



1 proposed thus far. My backyard.

2 As the host of such a distinguished form
3 of putrid garbage, I fully expect recompense. I shall
4 require a bottle of the finest champagne to be toasted
5 every day for evermore. After all, what sort of a host
6 would I be if I could not toast.

7 By the way, my backyard is very big. Yes,
8 you see, I've purchased a piece of prime property in
9 Ottawa, and I'm moving there soon. Albert Street to be
10 precise. Rest assure, we'll be putting those "Nimbys"
11 in their place, AH! As for the anti nucs of the world,
12 for shame! Don't you have something better to do than
13 to pursue a few stragglng isotopes?

14 Il reste à dire qu'on est au carrefour,
15 n'est-ce pas? On doit grouiller ou rouiller, hein?
16 J'espère que vous avez eu un bon séjour en Acadie.
17 Bonne chance avec votre décision. J'ai confiance en
18 vous. Ahimsa!

19 THE CHAIRMAN: Merci beaucoup pour cette
20 présentation, madame Dupuis. Are there questions which
21 any members of the Panel would like to put to Ms.
22 Dupuis as a follow-up to her presentation? Doctor
23 Lapierre.

24 DR. LOUIS LAPIERRE: Merci beaucoup,
25 madame Dupuis. Je ne sais pas si vous avez des



1 commentaires au sujet, vous savez que des déchets sont
2 produits un peu partout au Canada ...

3 MS. DUPUIS: Oui.

4 DR. LOUIS LAPIERRE: ... si on doit, même
5 peut importe ce qui arrivera à l'avenir, il y a
6 actuellement des déchets.

7 MS. DUPUIS: Oui.

8 DR. LOUIS LAPIERRE: Avez-vous déjà arrêté
9 votre pensée à savoir si on doit les transporter à un
10 endroit qui sera central ou bien les garder sous les
11 lieux de production?

12 MS. DUPUIS: Oui, j'ai pensé à ceci et j'en
13 ai discuté avec mes amis et ma famille, et j'en suis
14 venue à la conclusion qu'on doit les garder où ils sont
15 produits. Ils doivent rester où ils sont produits.

16 I also believe that the deep geological
17 mines that we are planning or that are being looked at
18 does not warrant our attention because the earth moves,
19 you know. I mean I know the earth moves, every time
20 I'm with my man, you know, the earth will always move.
21 There, people are alive! I got a chuckle.

22 I know this is a serious problem, I know,
23 I realize that, I'm a mother, you know, I have a very
24 good profession. But I do believe we have to keep it
25 on site. We, in New Brunswick fought not to have it



1 produced here in our province but there are powers that
2 be here that are pretty strong and sort of won out. We
3 have to keep the waste here, above ground.

4 I think that what was being planned or
5 looked at with a deep geological mines are just too --
6 it's just too much of a chance to take. We can't
7 just -- people forget that, you know, they have a time
8 capsule and a hundred years later they forgotten that
9 it was there, God, ten thousand years from now or
10 whatever, you know, amount of time away from now. I
11 have to think of what I'm going to be giving to my
12 children, their children and on and on.

13 I believe in the human species, I believe
14 that we will overcome these difficulties. We put our
15 best minds to it and we will overcome. But I believe
16 that I have to work along side of each and every one of
17 you and everybody else that's here on this small
18 planet.

19 DR. LOUIS LAPIERRE: Merci beaucoup.

20 MS. DUPUIS: Bienvenue.

21 THE CHAIRMAN: Doctor Fyfe.

22 DR. WILLIAM FYFE: Q. Just one question.
23 Which country in Central America were you referring to?

24 MS. DUPUIS: My sister told me of these
25 visitors and I don't know which ones, I don't know. I



1 thought I'd mention it. It struck her. She presented
2 a few days ago.

3 THE CHAIRMAN: Thank you very much indeed
4 and thank you for coming this distance to be with us
5 today and to let us share with you and your views.
6 It's very good of you to come. It's appreciated.
7 ---Ms. Dupuis withdraws.

8 THE CHAIRMAN: The final name which I have
9 on my list, an organization as Eco-Chaleurs, a doctor
10 James Service. I'm not sure whether he has arrived or
11 not. I understand that there was some concerns. He
12 has not reported.

13 Well one I would suggest, is there anyone
14 else who has not yet inscribed but would like to speak
15 to us while we're here. If not, perhaps we could, at
16 least, break for a cup of coffee. If doctor Service
17 does make it from the Baie des Chaleurs, then we can
18 reassemble and continue to hear from him.

19 But, meanwhile over a cup of coffee or
20 whatever is available outside, there will be some
21 chance for a little bit of informal discussion. If he
22 does not appear within the next twenty (20) minutes or
23 so, I'm afraid we will have to conclude that he is not
24 going to be able to make it through our session today.
25 Perhaps he will submit something in writing.



1 --- Brief recess taken

2 --- On resuming

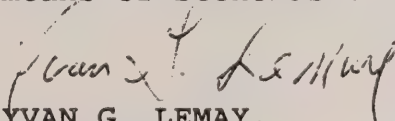
3 THE CHAIRMAN: I would like to thank
4 all of you very much for being here, for participating
5 in these three (3) sessions of our meetings in
6 Fredericton and for your participation, your active
7 participation sharing your views with us.

8 We appreciate it very much indeed. But
9 at least, join for a cup of tea or coffee or whatever
10 is out there for a bit of informal conversation.

11 Thank you very much indeed.

12 ---Whereupon the hearing was adjourned, to be
13 reconvened on Wednesday, November 8, in Ottawa.

14
15 I, YVAN G. LEMAY, the undersigned Official
16 Court Reporter, hereby certify the
17 foregoing is a true and faithful
18 transcript of these hearings taken by
19 means of stenomask.

20 
21 YVAN G. LEMAY,
22 Official Court Reporter
23
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